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ABSTRACT

This document summarizes the selection, configuration, implementation, and evaluation of BiblioFile, a CD-ROM based bibliographic retrieval system used to catalog and process library materials for 103 school centers in the Palm Beach County Schools (Florida). Technical processing included the production of spine labels, check-out cards and pockets, and catalog sets for both print and nonprint media by the school district's Department of Instructional Support Services. Initiation of the study resulted from a need for existing support personnel to catalog and process ever-increasing numbers of library books and amounts of audiovisual materials for a large and fast-growing school district. Included are a profile of the department; a comprehensive review of the related literature; and a detailed presentation of the procedures followed during the selection, configuration, and implementation stages of the project. The evaluation of the newly implemented system for end-user effectiveness via an eight-item survey of 103 district media specialists is described, as well as a time-cost study of the administrative system which compared the productive capability of the system with previously employed manual methods. Pertinent data and implications resulting from the survey and the time-cost study are discussed in detail. The final system configuration and a revised set of cataloging and processing procedures are appended. (Author/CGD)

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IMPLEMENTING AND EVALUATING A BIBLIOGRAPHIC RETRIEVAL SYSTEM FOR PRINT AND NON-PRINT MEDIA MATERIALS

James L. Buchholz

A MAJOR FIELD PROJECT PRESENTED TO NOVA UNIVERSITY
IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE
DEGREE OF DOCTOR OF ARTS

NOVA UNIVERSITY
CENTER FOR COMPUTER-BASED LEARNING
1987

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From the researcher's area of supervision, appreciation is extended to Terri Watts, Processing Section Head, Instructional Support Services, Palm Beach County Schools. Her assistance, in terms of identifying problems of conformity with cataloging and processing specifications, helped the researcher develop alternate strategies during the configuration phase of the project. Her assistance was also invaluable in revising existing manual procedures and by providing accurate direct time measurement data for the time-cost study.

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James L. Buchholz

ABSTRACT

A fast growing south Florida school district struggled with providing needed central cataloging and processing services to its 103 school centers for library books and non-print media materials. Previous methods employed involved the manual typing of spine labels, book/material check out cards and pockets, and either the original production of catalog cards, the duplication of cards held in the master file or the ordering of available cards from the Library of Congress by U.S. Mail. Prior analysis by the researcher indicated that a computer-based bibliographic retrieval system, properly configured to meet district and school specifications, might be implemented to eliminate the mail ordering of card sets from the Library of Congress and serve to simplify and expedite the "in-house" production of cards and processing of materials not cataloged by the Library of Congress. It was assumed by the researcher that the providing of district-wide cataloging services and full "shelf-ready" processing of media materials to 103 school centers was a significant study worthy of review and relevant to existing problems in the information science field.

A comprehensive search of professional literature was conducted to obtain more information about currently used bibliographic retrieval systems - their merits and disadvantages. Media supervisors in selected colleges and other Florida school districts were queried for their input about

research conducted and solutions they employed relative to the selection phase of the study. Based on the information gathering process, possible retrieval systems and/or ancillary products capable of solving the institutional problem were identified. Selected vendors were contacted for specific information about their individual products that was further analyzed for possible acquisition. Based on information received from all sources, the BiblioFile system was found to be the most cost-effective solution, and the one most capable of enhancing cataloging and processing operations. Its purchase was recommended to, and approved by, higher level district administrative personnel.

Once the system was received, it had to configured to insure that produced materials were consistent with both existing institutional guidelines and the MARC, AACR II and ISBD formats. During this phase, existing personnel were trained to use the system and queried for input relative to its implementation. Care was taken during this phase to insure that existing cataloging and processing standards, etc. were not sacrificed by an inadvertent enthusiasm to effect positive implementation of the system. By the same token, safeguards were taken to insure that dislike of change, particularly, automated change, on the part of existing personnel, did not adversely affect the implementation of the system. During the configuration and limited implementation stages, which lasted two months, many procedural changes were identified that would enhance the full implementation of the system. Configuration adjustments were made throughout the configuration and limited implementation stages until system produced materials were of the desired quality and format.

Once the system was up and running and producing materials at a high level of staff satisfaction, system utilization moved into the full implementation stage. During this six month phase the system was used to produce processing materials for all books and audio visual materials cataloged by the Library of Congress. Additionally, the system was used for the in-house production of processing materials for books and audio visual materials for which there was no cataloging data either in the system database or in the district master file. During this phase, many procedural changes were identified and implemented, resulting in the writing of revised procedures for the Processing Section. Significant hardware changes were effected during this phase to enhance the production capabilities.

Following the full implementation phase, it became necessary to evaluate the system for effect. In the researcher's opinion, system evaluation had to be based on both a survey of school media specialists relative to their needs and expectations and an in-house time-cost study effected at the institutional level to determine relative costs or savings of the new system as opposed to the preexisting procedures. In that regard, an evaluative instrument was constructed and distributed to district media personnel that facilitated the gathering of data about the effectiveness of the newly operational system from their point of view. Also, a time-cost study comparing the production of processing materials, under the old set of procedures and with the new system, was conducted by gathering direct time measurement data of the cataloging and processing functions.

Results from both analyses strongly indicated that system production was viewed favorably from both the standpoint of district school media specialists and administratively from a cost-effectiveness point of view. Several recommendations from both staff and media specialists were analyzed and incorporated into the system production capability. Additionally, the researcher has considered several future measures that would facilitate the storage of cataloging data into a proposed district union catalog. The researcher was able to supervise the selection, installation, configuration, implementation and evaluation of the BiblioFile system.

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CHAPTER I -- INTRODUCTION

BACKGROUND AND SIGNIFICANCE

Information professionals have long realized the need for the maintenance of a high level of consistent cataloging and processing standards that will allow maximum patron access to all print and non-print materials in their collections. There is currently much general interest registered by librarians in particular, and other information managers as well, about rapid and accurate bibliographic retrieval that is now made possible as a result of recently available technology. There is, however, legitimate concern registered by these same professionals that the use of existing technology to deal with library problems associated with rapidly expanding amounts of published material might lead to a degradation of previous cataloging and processing standards.

In this study, a fast growing south Florida public school district struggled with providing needed central cataloging and processing services to its 103 school centers for library books and non-print media materials. Additionally, cataloging and processing of print and non-print media materials was effected for Educational Consolidation and Improvement Act (ECIA) Chapter II media expenditures for 41 Office of Civil Rights (OCR) approved, federally participating, non-public schools. The primary focus of this study was on the shelf ready cataloging and processing of those media materials not received pre-processed by the Educational Media Unit of the Department of Instructional Support Services of the Palm Beach County Schools. Library books purchased through the district approved jobber, Baker and Taylor, that arrived pre-processed accounted for an estimated 60 percent of the total library book purchases and were exempted from the study, as were 30 percent of the audio visual materials that arrived with accompanying cataloging kits. Pre-processed books and audio visual materials are defined as those that arrived at Instructional Support Services with complete sets of catalog cards.

The remaining 40 percent of all library books and 60 percent of all audio visual materials arrived without cataloging kits and had to be cataloged and processed by the Educational Media Unit before shipment to school centers. Before the initiation of this study, methods employed involved the manual typing of spine labels, book/material check out cards and pockets and either the original production of catalog cards, the duplication of cards held in the master file or the ordering of available card sets from the Library of Congress by mail. If none of the above methods was successful, in-house materials, such as, catalog cards, spine labels, book cards and pockets, had to be produced from scratch.

Preliminary analysis by the researcher suggested a computer-based bibliographic retrieval system, properly configured to meet district and school specifications, might be implemented to eliminate the mail ordering of card sets from the Library of Congress and to simplify and expedite the in-house production of catalog cards and processing materials not cataloged by the Library of Congress. It was obvious to the researcher that the providing of cataloging and full shelf-ready processing of media materials to 103 public and 41 non-public school centers was the basis for a significant study that was relevant to existing problems in the field. Alternative systems for goal accomplishment related to the study were investigated for possible solutions.

Institutional background information is provided below. The Department of Instructional Support Services rests organizationally under the Division of Instruction and the School Board of Palm Beach County. The purpose of the organization is to provide those needed materials and services, whose cost might be individually restrictive, to school centers. The functions of this department are diverse and the present alignment can be best illustrated by an organizational chart of the department that is provided below.

Figure 1: Organizational Chart of the Department of Instructional Support Services.

```
        INSTRUCTIONAL SUPPORT SERVICES
                      :
                      :
               VERNON CRAWFORD
                  DIRECTOR------------
                      :               :
                      :               :
                      :           FLO RICE
                      :         SECT'Y TO DIR
                      :
                      :
                      :
------------------------------------------------------------
:          :          :          :          :             :
:          :          :          :          :             :
:   JOHANNA SHEEHY    :      PAT MYERS      :   SABINA MEYER
:  PROFESSIONAL LIB.  :      TEXTBOOKS      :        ITV
:                     :                     :
:                     :                     :
:                     :                     :
JANE SHELLMYER     JIM BUCHHOLZ         TONY RANALDO
  FINE ARTS      EDUCATIONAL MEDIA       PRINT SHOP
```

Since the study directly involved the Educational Media Unit of the department, the staffing patterns of the unit are provided below in Table 1: "Staffing Patterns of the Educational Media Unit." Additionally, the staffing patterns of the unit are illustrated in Figure 2: "Organizational Chart of the Educational Media Unit of the Department of Instructional Support Services." This information will assist the reader in better understanding the institutional background relative to the study.

Table 1.--Staffing Patterns of the Educational Media Unit

1 Media Specialist/Processing, Instructional

1 Section Head, Acquisitions, Non-Instructional

1 Section Head, Processing, Non-Instructional

1 Section Head, Film Library, Non-Instructional

9 Acquisitions/Processing Clerks, Non-Instructional

1 Acquisition/Tech Bookkeeper, Non-Instructional

2 Film Library Booking Clerks, Non-Instructional

3 Film Technicians, Non-Instructional

Figure 2: Organizational Chart of the Educational Media Unit.

EDUCATIONAL MEDIA UNIT

JIM BUCHHOLZ
MEDIA SPECIALIST FOR PROCESSING

RUTH MILTON SECTION HEAD ACQUISITIONS	TERRI WATTS SECTION HEAD PROCESSING	KAREN CREWS SECTION HEAD FILM LIBRARY
4 CLERICAL 1 BOOKKEEPER	4 CLERICAL	2 CLERICAL 3 TECHNICIANS

In addition to the eighteen employees represented in figure two, the Educational Media Unit currently trades off one clerical position to pay for library book pre-processing by Baker and Taylor. The number of salaried positions in the unit is nineteen. Additional part time or temporary help are employed to meet demands during peak periods. Presented below are the major activities performed, data that substantiates activities performed and the major accomplishments of the unit during FY87. The fiscal year for the School Board of Palm Beach County runs from July 1 through June 30.

Major Activities Performed During FY87:

1. The acquisition of print and non-print library media materials (including computer software) purchased from federal, state and local funding for the 103 district public schools. Also, coordinating the acquisition and processing of all media materials ordered under ECIA Chapter II funding for the district's 41 OCR approved, federally participating, non-public schools.

2. Encumbering of funds and issuing of 4,000 to 5,000 purchase orders each year for all print and non-print media materials ordered through objects 5342 (newspapers & periodicals), 6200 (audio visual materials), and 8100 (library books). Most of the purchasing was done through function 6200 (library/media). Recent years have seen, however, a dramatic rise in purchases made through these object codes for other school based programs.

3. Receiving, verifying and approving invoices for payment of all print and non-print media materials (including com-

puter software) ordered under the above object codes. All materials were shipped to school centers shelf ready and "problem free," in that all damaged, incorrect or incomplete orders were centrally reconciled with vendors before payment was issued on the purchase order. It is estimated that this procedure alone saved the School Board of Palm Beach County some $200,000.00 during FY87.

4. Full shelf ready processing of library books and audio visual materials (including computer software) purchased from federal, state and local funding, for the 103 district public schools. Also, the full processing of all media materials ordered under ECIA Chapter II funding for the district's 41 non-public, federally participating schools.

5. Production and distribution of catalog card sets and processing materials for library books and audio visual materials donated or purchased with school center internal accounts.

6. Purchase, maintenance and circulation of Film Library resources including: 16mm films, videocassettes, and multimedia kits.

Data from FY87 that Substantiates Activities Performed:

1. Acquisitions averaged purchases amounting to well over $65,000.00 each month. This was an increase of over $5,000.00 per month over FY86. Since 1980, the number of

public schools has increased significantly from 86 to 103 and the number of non-public schools served under ECIA Chapter II has increased from 21 to 41.

2. Acquisitions estimates encumbering the following funds during FY87:

ECIA Ch. II, Media	$205,000.00
State Allocation	$137,850.00
School Budget	$576,915.00
Total	$919,765.00

This was a dollar increase of $202,045.00, representing a 28 percent increase in work load over FY86.

3. The processing section estimated that it processed 51.620 print and non-print materials during FY87 at an average of 4,301 items per month. These figures represented nearly a 20 percent increase, monthly and annually over FY86. To keep school centers from losing funds, members of the processing staff were periodically assigned to acquisitions to assist in meeting encumbrance deadlines for the various fund sources noted above. Often this resulted in a backlog of materials needing to be processed.

4. Film Library resource materials number 6,334. Of this figure, 5,439 are 16mm films representing 4,968 individual titles. The remaining 895 resources are either videotapes or multi-media kits. During FY87, the Film Library has filled 25,123 of 30,684 requested bookings at a request to booking rate of 77 percent. The Film Library has

experienced a 26.96 percent increase in workload over the last three years.

Major Accomplishments During FY87:

1. All print materials ordered by the spring of 1986 were delivered to school centers by the opening of school, 1986-87.

2. The opening day media collections for Loxahatchee Groves Elementary and Christa McAuliffe Middle School have been ordered, received, processed and delivered well before the end of FY87.

3. Responses to the department's request for proposal for a district-wide library automation system have been analyzed. One media management system has been tentatively selected as the result of a five year cooperative study involving personnel from the Educational Media Association, Management Information Services, and Instructional Support Services. Implementation of the system is contingent on the results of the district-wide automation study now in progress.

4. Data entry work in the new "call-in" film booking program was nearly half completed. Once implemented in the fall of 1987, it is expected to increase the ratio of requests to bookings from 77 to 85 percent.

It is hoped that the above will give the reader a better understanding, from an institutional perspective, about why the study was conducted. From the conceptual point of view, the study was a natural progression of the institutional need to maintain existing cataloging standards while increasing the production of processed media materials in a fast growing school district. CD-ROM technology provided the researcher with a low cost yet effective method of catalog production to meet institutional needs. The remainder of this study focuses on the selection, implementation and evaluation of BiblioFile, a bibliographic retrieval system, acquired to help solve the institutional problem of providing cataloging and processing services to an ever-increasing amount of school centers for a rapidly expanding amount of published print and non-print materials.

RESEARCH QUESTIONS

Research questions that were addressed as a part of this study revolved around its three major phases, namely the selection phase that was completed before initiation of the study and the implementation and evaluation phases. In that regard, the major issues and corresponding questions are separated below by these three conceptual divisions.

Selection:

The selection phase of the study was completed before the study began but the researcher feels that research questions related to the selection are necessary here to provide the reader with important background information relative to the current status of the project. Based on the information gathering process, possible retrieval systems and/or ancillary products capable of solving the institutional problem were identified. During the selection phase the number of systems considered were limited to the three most capable of solving the institutional problem: Mini-Marc, OCLC and BiblioFile. The three selected vendors were contacted for more specific information about their individual products so that further analysis could be conducted. Based on information received from all sources and the research questions that follow, the CD-ROM based BiblioFile system was selected and approved for purchase. The following research questions were addressed during the selection process.

1. Cost. What hardware, software and human resources are required to support the system?

2. Effectiveness. How well will the system accomplish the purpose for which it is acquired?

3. Authority Control. Is the data available both accurate and consistent? Does it conform to Anglo-American Cataloging Rules, Second Edition (AACR II) and the International Standard Bibliographic Description (ISBD) format?

4. Personnel considerations. What additional personnel or training for existing personnel will be needed to implement the new system? How much "down time" will there be while the system is being implemented?

5. Contractual considerations. What fees does the vendor expect the School Board of Palm Beach County to pay beyond the initial cost of the system?

6. Copyright considerations. Is the data in the public domain, or is it owned by the vendor?

Implementation:

Once the system was selected, the researcher's focus turned towards major issues and considerations related to the implementation of the system. Key issues that need to be addressed during the implementation of any automated project were gathered from a review of pertinent literature and synthesized into the following list of research questions.

1. Personnel. What additional personnel or training for existing personnel will be needed to fully implement the new system?

2. Attitudes. Among existing personnel, what is the current attitudinal climate relative to change, and in particular, automation? What can the researcher do to minimize negative effects in this regard?

3. Procedural. What is to be done when materials to be cataloged and processed are not found in the system database? Will the existing procedures be entirely replaced or will they only be modified.

4. **Managerial.** What upper level administrative support will be given to fund any additional training or other expenses found necessary to fully implement the system?

Evaluation:

Once the system was implemented and performing at a reasonable level of expectation, focus turned to issues and questions related to the evaluative phase of the project. From literature reviewed, generic considerations regarding the evaluation of automated systems were compiled and synthesized into the following research questions.

1. **Design.** How will the evaluative instrument and the time-cost study be designed? What aspects of the central cataloging and processing of media materials will be addressed?

2. **Reviewers.** Who will be queried for response relative to the survey instrument?

3. **Analysis.** How will the results of the survey instrument and the time-cost study be interpreted? What future recommendations for improvement will be considered?

4. **Action.** What future action, based on the analysis of all data from the evaluative phase is planned to further enhance system effectiveness?

ASSUMPTIONS AND LIMITATIONS

Because information professionals have long realized that consistent cataloging and processing standards allow maximum patron access to materials in their collections, it was assumed that this study should be of general interest to all media personnel. Because of the rapid and accurate bibliographic retrieval that is now possible as a result of recently available CD-ROM technology, it was felt that this study should be of particular interest to librarians. The researcher felt that the providing of cataloging and full "shelf-ready" processing of media materials to 103 school centers in a fast growing school district represented a comprehensive effort in the information science field that all information managers and administrative personnel would find of particular importance.

Moreover, the researcher assumed that the significance of this study extended beyond the realm of solving an institutional problem. The use of emerging CD-ROM technology to solve older and more universal problems associated with cataloging and processing media materials was timely. It was also the subject of great current interest in the field. It was significant that many of the older and well established bibliographic retrieval services, including OCLC, were planning on making a transition to CD-ROM because of a real economic need to compete in this new area. The older services were finding movement towards CD-ROM storage better, from a competitive standpoint, because it allows them to provide data on a subscription basis, thereby eliminating the end user need for costly online charges and/or elaborate and expensive tape streaming storage hardware, etc.

Additionally, the researcher assumed that this study had significance beyond just the BiblioFile solution. Most of the other systems reviewed stored data using the MARC format and internationally standard CD-ROM disks and drives, etc. Projecting eminent and significant movement into CD-ROM in the months ahead, the researcher felt this study would be of particular interest to those information managers and administrators contemplating a solution to their cataloging and processing problems. Because of the large amount of schools served by the institution, the interest in CD-ROM and the BiblioFile system and the implications it will have on the older bibliographic utilities, the researcher felt that the study would be worthy of widespread review.

The researcher was able to organize and supervise the selection, purchase, configuration, implementation and evaluation phases of the project within a two year period from the working budget of his department. The researcher assumed correctly that additional funds would be needed, beyond the initial hardware and software investment, to increase the capacity of the basic system. The researcher assumed that the addition of new staff to effect more positive system implementation was not a realistic alternative because of district growth and existing budgetary constraints.

This study was limited only by the existing procedural, budgetary and personnel constraints of the Department of Instructional Support Services. Procedural adjustments were expected and found to be necessary throughout the implementation stages of the project. In that regard, procedural changes, allowing for the implementation of the BiblioFile system, were considered carefully before existing manual procedures were rewritten. The existing budget and staffing levels of the Educational Media Unit were not a limiting factor in the selection, implementation and evaluative phases of the project.

DEFINITIONS OF TERMS

Below is a list of specialized terminology or acronyms and their corresponding definitions that might assist the reader who is not familiar with them. Additionally, an effort has been made to include any terminology that might possibly have a different or ambiguous meaning other than its use in this study.

AACR II -- Anglo-American Cataloging Rules, Second Edition. Accepted rules governing sources of information to be used for a work being cataloged, punctuation to be used between elements of the catalog card and the organization of the elements in the catalog card.

Accession -- To record books or other print and non-print material in the order they are received. Accession numbers are assigned to material in order of receipt in a library.

Added Entry -- Any catalog entry other than the main entry, e.g.: joint author, subject, etc.

ALA -- American Library Association.

BiblioFile -- A CD-ROM based bibliographic retrieval and catalog production system produced by the Library Corporation.

Call Number -- The notation used on materials and catalog cards to identify and locate specific media items.

Catalog Maintenance Program -- Software application program provided by the Library Corporation that allows users to build a union catalog of holdings.

CD-ROM -- Compact Disk, Read Only Memory.

CD-ROM Drive -- Hardware required to read compact discs. The model used in this study was the Hitachi 1502S.

CIP -- Cataloging in Publication. A program sponsored by the Library of Congress and cooperating publishers where cataloging information is provided on the verso (back side) of the title page.

Collation -- The section of a catalog card listing the number of pages, volumes, and any illustrative material, etc.

District Union Catalog -- A proposed database of Library of Congress and original cataloging data stored in MARC format.

ECIA Chapter II -- Chapter two of the Educational Consolidation and Improvement Act that provides federal funding for the purchase of media materials and equipment.

Hypertext -- A method of indexing data for rapid retrieval, as in CD-ROM based applications. Key words or descriptors are used to reference stored data.

Intelligent Catalog -- Online patron access catalog produced by the Library Corporation. The Library Corporation also produces the BiblioFile system.

ISBD -- International Standard Bibliographic Description. Internationally accepted standard format for the representation of descriptive of information in bibliographic records.

ISBN -- International Standard Book Number. An internationally specific number given to a published monograph.

LC -- Library of Congress.

MARC -- Machine Readable Cataloging. A program of the Library of Congress where machine readable bibliographic data is distributed either on disk or tape. Such bibliographic records are said to be in MARC format.

Medium Designator -- A generic term indicating the category to which a work belongs, e.g.: sound recording, filmstrip, etc.

OCR -- Optical Character Recognition or the Office of Civil Rights.

Secondary Work Station -- PC XT microcomputer booted with BiblioFile Catalog Production Software used for the original cataloging of audio visual materials.

Shelf List -- A record of books in a library arranged in the order in which they stand on the shelves.

Specific Medium Designator -- Used with the medium designator, the exact type of material is defined, e.g.: sound recording is the medium designator, while specific format such as disc or cassette, is the specific medium designator.

Verso -- The left hand pages of an open book. Usually used to refer to the back side of a title page.

The preceding information about the researcher's institution, research questions addressed, definitions of terms, and assumptions and limitations of the study provide the reader with an introductory base from which to review the remainder of the study. Chapter II -- Review of Related Literature, highlights professional sources consulted by the researcher before and during the study.

CHAPTER II -- LITERATURE REVIEW

Information professionals widely agree on the need for significant use of computer technology to solve cataloging and processing problems in all areas of information science. Consequently the current professional literature contains a profusion of articles related to bibliographic applications for information centers. Everywhere in journals, new books or ERIC documents, one cannot but be impressed by the high degree of emphasis being placed on this new technology as it relates to the cataloging and processing of print and non-print media. A good example is an article entitled "CD-ROM and Its Application to Libraries and School Media Centers," (Strickland, 1987). She cites 22 separate bibliographic sources dealing with bibliographic retrieval. Moreover, in this study, the problem was not finding relevant literature, but rather, evaluating and limiting findings to the most pertinent works applicable to the project. Examples of findings from professional literature of national stature reviewed to date follow.

Chapman (1973) sees the increased quantity and complexity of user demands as the main reason information professionals are beginning to turn to automated solutions for library problems. Chapman (1973), Fasana (1973) and Minder (1973) take a systems analysis' view of library problems.

They believe that the goals and objectives of the institution, management of personnel, technology and many other external factors must all be fully considered when adopting suggested strategies, particularly automated ones. Becker (1983) sees the role of the information professional expanding at a tremendous rate because of the increased range of technologies that must be used to retrieve information. Like Chapman, Fasana and Minder, he warns the implementors of new automated systems not to ignore the "organizational, political and human" factors already in place in the institution. Weber (1971) presents a comprehensive analysis of important personnel aspects that must be addressed to allow peaceful and productive change to occur.

Francis (1984) summarizes, from a British point of view, the importance of storing "full records ... to increase the productivity of any (automated) cataloguing system." In the United States, Smith (1985) explains efforts underway at the Library of Congress to "maintain bibliographic control, in this, the information age." Adiletta (1984), Aveney (1985), Butler (1983) and Philip (1984) present information about the technical aspects of data transmission for information professionals. Fujitani (1984) and Gale (1985) present indepth technical information related to the operation of the Laser Optical Disk as it applies to bibliographic data storage and retrieval.

Intner (1984) provides an extensive and valuable professional insight into the process of wisely implementing a change from manual to automated bibliographic systems. Her work surveys the history and current technological "state of the art" relative to bibliographic systems and provides the reader with both a rationale and a handbook-like set of procedures for implementing this change. Although the work is over four years old and therefore does not contain most recently available CD-ROM applications, it is the outlined logical process, from a librarian's standpoint, that is found to be most valuable in terms of initiating any change regardless of technological developments. Additionally, survey results presented provide an important insight into the current attitudes and preferences of information professionals. Eddison (1983) explains the role of the modern information professional as an effective change agent rather than being subjected to mandated automation of library systems.

Black (1983), Boss (1985), Held (1983) and Meadow (1985) explain in detail equipment configurations, software available, and telecommunications techniques required to carry on effective communications with host bibliographic retrieval systems. Information gathered from these sources assisted the researcher in determining costs related to communications with mainframe driven systems. Salton (1983) explains important data retrieval techniques necessary when communicating with such systems.

Desmarais (1986) provides important up-to-date information about CD-ROM and its specific effects on the information related professions. His analysis of the many current services available on CD-ROM, what is planned for the future, etc., is valuable in providing the reader with needed background information. Drew (1985) surveys the issue of copyright that information professionals must be aware of before planning movement into bibliographic retrieval, either from online or CD-ROM sources. The information provided is generic, yet asks the reader to consider issues of public domain, ownership and end-user rights. The principles outlined can be applied to any retrieval medium. Miller (1986) explores much the same angle as Drew (1985), but focuses more on the selection aspect of CD-ROM usage. The value of a needs assessment, consideration of system options and planning a pilot project are discussed in addition to the copyright issue.

In "In Two Major Projects: Schools Share CD-ROM Data," the editors of American Libraries (1986) describe the ACCESS PENNSYLVANIA and Minnesota TIES projects. These efforts are geared toward providing state-wide CD-ROM based catalogs for public school libraries in MARC format as a new alternative to online database access. Both projects will represent a specific library related usage of CD-ROM technology. Higgins and Thomason (1983) provide a step by step analysis of the Albuquerque, New Mexico Public School District's conversion project, implemented to streamline a central automated acquisitions and processing center. The problems discussed and procedures developed assist the reader in preparing for such an undertaking, regardless of the technology involved. Specifically addressed are the procedures used to convert bibliographic records into machine readable format. Kuhlman and Lee (1986) explore some of the possible strategies information professionals might use to take the best advantage of CD-ROM technology as applied to library problems.

Brandhorst (1986) focuses on the general data retrieval characteristics of the compact disc and, in particular, on the future effect such technological developments will have in the information management fields. His paper outlines the cooperative efforts of ORI, Inc., and SilverPlatter, Inc., to offer "Resources in Education" (RIE) and "Current Index to Journals in Education" (CIJE) on compact disc. His study reviews the reasons why the Educational Resources Information Center (ERIC) is committed to the CD-ROM based method of data dissemination. Early market information gathering, development and configuration of the product, assignment of corporate responsibilities, testing and pricing, etc. are discussed. More valuable to this study, is his determination that ERIC, when delivered via compact disc technology, will be successful as based on the five success factors he outlines for CD-ROM delivery. The five success factors for CD-ROM delivery are: "(1) large volume of data; (2) stable data not requiring frequent updates; (3) geographically dispersed user community; (4) most users have access to microcomputers; and (5) additional processing enhances the value of the data delivered."

Chen (1985) presents pertinent information about the mechanics of CD-ROM technology as applied in microcomputer based applications. Fundamentals of videodisc technology and the variety of possible hardware configurations necessary to use it are discussed. The study outlines the status of both government sponsored and commercial videodisc and CD-ROM projects now underway. Of interest to this study is his speculation of possible future developments and their effect, in terms of data storage, processing and retrieval on the information management fields. Kuflik (1987) explains that the best use of CD-ROM's for data storage and retrieval can be realized when used for data that does not change rapidly. He cites parts directories and encyclopedias as examples of a effective use of the technology. He contends that online sources for data retrieval is still the most preferred when accessing data that is updated monthly or more frequently. He follows with a discussion of standard format development that is now underway for CD-ROM discs.

Riche (1986) outlines efforts underway at the U.S. Census Bureau to begin using CD-ROM storage for data from the 1990 census. Current data held is maintained on 25 reels of magnetic tape. It is estimated that the same amount of data could be easily stored on one or two compact discs. There appears to be no doubt about the advantages of storing census data on this medium since movement into this area has already begun. The only concern, at this point, is the development and configuration of the software that will allow data retrieval and manipulation. The questions of what segments of data needs to be accessed and what manipulation of retrieved data should be allowed for in the software designed are now being addressed by bureau management. The decisions in this regard will be reflected in the final software design that is being developed by the bureau.

Rivett (1987) outlines the two recording techniques associated with videodisc and CD-ROM technology. His in-depth analysis of the mechanics of the technology makes it easy for a non-technical person to understand the characteristics of digital optical discs, compact disc read-only memory (CD-ROM), compact disc interactive (CD-I), optical read-only memory (OROM), write once optical discs (WOOD) - also called write once, read many times (WORM) and erasable read/write optical discs. This summary explains the diversity and illustrates the future possibilities that optical storage mediums will have on the future of information management.

Helliwell (1987) explains the economics of CD-ROM production, indicating that "the same economies of scale" and techniques apply to their production and the audio CD. He estimates that the current unit costs of $25.00 per disc and

$1,000.00 per drive should decrease as their inevitable popularity grows. He cites their use, on a one-time charge basis, as a superior alternative to online database retrieval. He sees this as the prime cost effective use of this new technology. He emphasizes the storage capacity and the end-user tailored flexibility that is possible with well designed searching software.

Schmerken (1987) outlines the use of CD-ROM technology in the business sector to gather "historical business and financial data on more than 10,000 companies, 900 lines of businesses, 50 industries and 8,000 executives." He describes, specifically, the possible uses of the CD/Corporate Database from Datext, Inc. The database covers four distinct business sectors: consumer, industrial, technological, and service related businesses. This researcher found it interesting that yet another practical application of this technology had been found and that the level of competition relative to the disclosure of corporate information was so intense.

Cohen (1986) provides a comparative study of the relative costs of providing abstracts and indexes to library patrons via hard copy, online, and CD-ROM formats. Over a five year period, "the initial start-up costs, and ongoing/marginal costs" were computed for each medium. Hard copy is found to be the cheapest delivery medium for only certain applications. When salaries, equipment and supplies are considered, either online or CD-ROM based solutions are more cost effective. It is noted that the CD-ROM solution has a higher up-front cost for hardware and software not needed for online activities. However, "CD-ROM offers miniaturized collections, fast and accurate searches, resistance to wear, and potentially low-per-search costs," and appears to be the most economical solution over the long run.

Stephens (1986) reports the use of InfoTrac at the Meriam Library, California State University, Chico. InfoTrac, developed by the Information Access Company, is a laserdisc index database to more than a half a million references to articles published in some one thousand plus periodicals since 1982. The InfoTrac hardware configuration consists of IBM PC microcomputers, Hewlett-Packard Thinkjet printers, and a Pioneer videodisc player. The search software is stored on a single floppy disk that is loaded in the PC. During the eleven months of heavy use, only minor problems with hardware and security were noted. Stephens notes that despite the great success of InfoTrac for most general student use, that a greater amount of references on a given topic can still be derived from the use of print indexes.

Vandergrift, et. al. (1987) reports on several CD-ROM products now available that suit themselves well to specific library applications. Some of the CD-ROM applications discussed included: Brodart's "LePac"; Grollier's "Electronic

Encyclopedia"; Bowker's "Books in Print Plus"; Information Access Company's "InfoTrac II"; and Geovision, Incorporated's "Geovision". The use of InfoTrac II, a CD-ROM version of the videodisc system described above, in a high school library was discussed in detail. A passing mention of this project is found on page 29 of this article. An extensive annotated bibliography on CD-ROM was found to be useful to the researcher.

Murphy (1985) explains and illustrates the basic techniques of CD-ROM production and operation. He notes both the current and potential future applications of this new medium and explains the IBM PC-XT and Hitachi CD-ROM drive configuration adopted by his company, the Library Corporation, to support its CD-ROM based MARC database. Also explained is the BiblioFile software used to access the database and the current and planned capabilities of the BiblioFile Catalog Production System. The article is well illustrated with the hardware necessary to support the system and system screen displays.

The editors of Optical Information Systems (1986) provide the reader with a glossary of some 100 CD-ROM related technical terms and acronyms. This four page article is a great help to researchers by explaining some of the more confusing terminology commonly associated with this new technology. Similarly, Connolly (1986) presents in directory format the product names, descriptions, capabilities, subscription conditions and vendor names and addresses of currently available CD-ROM based applications. Hiscox (1983) provides a valuable insight into the overall potential of CD-ROM technology as applied to future educational systems. Dunn (1987) poses to CD-ROM experts fundamental questions relative to the future potential and development of CD-ROM as an effective information tool during the remainder of this century.

Byers (1987) explains, from a technical viewpoint, that "the very quality that makes CD-ROM so attractive - vast storage capacity - is also its biggest drawback." He explains that file directories, used successfully for indexing floppys and hard disks will not work for CD-ROM. He explains that "file names wouldn't scroll across the screen for a few seconds, but for hours." Hypertext appears to be the most practical approach to "tagging" a large amount of resident records to effect their rapid retrieval. This is achieved by associating several words or descriptors for each record that will call the record up when an associated search term is entered. He warns, however, that the effective use of hypertext indexing can only be achieved by a programmer that also has a working knowledge of the material being indexed.

Nihei (1987) provides a comprehensive listing of CD-ROM hardware, applications, services and references. Available CD-ROM drives along with their operating requirements, prices, and manufacturer information, is presented. Currently available CD-ROM applications in financial, reference, legal, general interest, science and medicine are discussed -- operating requirements, prices, and manufacturer information, is given for each. Companies offering services, such as database transfer to CD-ROM and CD-ROM disc replication, are listed. Also presented is a bibliography of pertinent books and periodicals on the subject.

Hegarty (1985) addresses nine "myths" commonly associated with library automation. Myth one asserts that automation will not save libraries money in the long run. Myth two asserts that an automated circulation system will control a library's delinquency rate. Myth three says that an automated system will not enable a library to allocate better its budget. Myth four states that as circulation increases, automation will not preclude adding staff. Myth five asserts that an automated system will not affect technical services productivity. Myth six is the general misconception of an online catalog. Myth seven is that one needs a consultant to select and install an automated system. Myth eight is the misconception of the necessity to use full MARC records in automated systems. Finally, myth nine is that most automated systems are turnkey systems. Hegarty dispels each of these with an analysis of facts gathered from a variety of sources now using automated systems in libraries.

Clement (1985) presents before and after automation survey data on how experience has changed some librarians' views about the important things to consider when selecting an automated system. The comparison of views, both before the installation of a system with those after the system had been up and running for a considerable time, was illuminating to one considering his own automated solution. Factors surveyed were: cost, software, hardware, vendor, and other considerations. Cost varied the most from pre to post-assessment. Cost was initially weighted most important of all considerations at 45 percent (based on 100 percent) before installation, but shifted to 34 percent in the post assessment. Other factors that became more important after installation were software design, continued vendor support and training.

Horny (1985) explains that one important key to superior librarianship is the realization that applying technology to solve problems, thus causing change, is not a one time event, but rather, a continuing activity in the information related professions. She points out that, based on history, constant change has already been imposed on the traditional librarian. It is emphasised that librarians can either attempt to resist the inevitable change, or better yet, be in charge of it. The latter scenario is obviously the preferred in terms of insuring that sensible and orderly changes occur. Horny goes on to expand on her speculations about how the information related professions will be changed in both the near and distant future. The key concept is that effective information professionals must remain flexible and realize that change is with us for the duration of our professional careers.

Matthews (1985) provides a comprehensive analysis of the automated systems marketplace as compiled for 1984. Included in the analysis is the share of the market held, based on purchases, by major vendors. The analysis is broken down into four areas: turnkey systems, library developed software available for purchase, microcomputer-based software, and computer produced microform (COM) catalogs. In each category, Matthews notes significant shifts in amount of new installations and overall share or percent of the market held. A complete list of vendors and their addresses is provided for each category reviewed.

Murphy (1985) provides important information relative to automation methods and practices employed by school library media specialists. Somewhat more valuable, is a survey of the attitudes of media specialists toward automation. This emphasizes to the reader the importance of not ignoring human aspects when contemplating an automated effort. The ALA's "Anglo-American Cataloging Rules" (1970) and Maxwell's Handbook for AACR2" (1980) provide the reader with the accepted ground rules for the cataloging and production of processing materials for both print and non print media materials. Olson (1985) greatly simplifies AACR II relative to the cataloging of non print materials and presents the reader with many examples to enhance the understanding of an often confusing subject matter. Finally, the Florida Department of Education's "A Statewide Plan for Library Networking and Automated Library Systems Development in Florida" provides valuable insight into what has been done statewide with networking and automation and what one might expect within the next five years.

The researcher has maintained an on-going review of pertinent literature throughout the duration of the study. Complete bibliographic citations of references consulted may be found in the bibliography section.

CHAPTER III -- PROCEDURES AND METHODOLOGY

SELECTION OF THE SYSTEM

The selection of the BiblioFile system was completed before the study was initiated. To assist with the selection, however, a comprehensive search of the professional literature was conducted to obtain more information about currently used bibliographic retrieval systems - their costs, merits, disadvantages, etc. Additionally, media supervisors in selected colleges and other Florida school districts were queried for their input about research conducted and solutions employed as they related to the selection of bibliographic retrieval systems. Based on the information gathering process, possible retrieval systems and/or ancillary products capable of solving the institutional problem were identified. Selected vendors were contacted for specific information about their product(s) that was analyzed for possible acquisition.

As a result of information received from all sources evaluated in concert with pre-established selection criteria, the BiblioFile system was recommended for purchase. Purchase approval from higher level administrative personnel was not a problem because of a well documented need to improve the turn around time of full shelf ready processed media materials to school centers. Additionally, funding for the BiblioFile system was not a problem because its initial cost did not exceed $5,000. It was purchased with regularly budgeted funding allocated to the researcher's institution. It was here that the preliminary phase of the project ended. A detailed description of system selection may be of value to others contemplating an automated solution to their cataloging and processing problems. This may be found in Appendix A -- The Selection Phase of the Project.

The implementation and evaluative phases of the project are the main focus of this study. A reasonable time frame for completion of these phases was preliminarily estimated by the researcher to be between nine and twelve months from the time the system was received to the completion of the evaluation phase. The time frame for completion of the project, excluding the selection phase, took place over a ten month period from November 1, 1986 through August 31, 1987. It must be noted that, because of the growth rate of the district and budgetary constraints during this period, the allocation of additional salaried positions to assist with the implementation and evaluation phases of the project was not a realistic option. It was obvious to the researcher that, from a practical standpoint, the main thrust of the project would revolve around existing personnel and funding sources.

The researcher and his staff realized that many books from foreign publishers, small or unusual children's books, extremely new books and virtually all audio visual materials needing to be processed would not have been cataloged by the Library of Congress and, therefore, would not reside in the system database. Existing procedures were temporarily allowed to remain in place to allow for the original in-house cataloging and production of processing materials for these exceptions. Manual cataloging and processing procedures were therefore used in conjunction with a new ancillary set of procedures developed to accommodate the cataloging and processing of materials that did reside in the system database. It was felt that this mixture of manual and automated procedures promoted maximum system usage, allowed for inevitable exceptions, and provided a reasonable transitory period for personnel to effect a phase-in of system implementation.

IMPLEMENTATION OF THE SYSTEM

Once the system was acquired, the first step in the implementation process was to configure production of materials to be consistent with both existing institutional guidelines and individual school center specifications. Appendix C -- Final System Configuration provides detailed information about the BiblioFile configuration utility. System functions had to be modified to coincide with existing standards to prevent any noticeable inconsistencies in cataloging and, if possible, in the processed materials themselves. The researcher realized that any changes in either area would have a significantly damaging effect, from a consistency point of view, on the older and more established media collections. For that reason, individual school center classification instructions, based on the judgement of the resident school media specialist, regardless of recent LC or Dewey changes, were to be honored as they had been under the previous manual procedures. During the configuration phase, every effort was made to maintain these long standing agreements.

Materials produced - specifically, spine labels, check out cards and pockets, and catalog card sets for books, unless requested otherwise, had to conform to (LC) Library of Congress and (AACR II) Anglo-American Cataloging Rules, Second Edition standards. Likewise, audio visual materials had to continue to conform to the (ISBD) International Standard Bibliographic Description format. Classifications had to remain consistent so that the first three dewey numbers were centered on the first row. The decimal point and a maximum of 5 numbers beyond it, or to the first prime mark, had to be centered on the second row, and the first three letters of the author's last name (first letter capitalized), if applicable, had to be centered on the third row. Also, individual school center options for reference, biography, collective biographies, fiction, short stories, and any other requested exception had to precede the call number on the spine label, book card & pocket, and all catalog cards.

The BiblioFile configuration utility had to be used to define the format and contents of system produced materials. In the researcher's opinion, the system was configured so that materials produced appeared to be consistent with the above guidelines, of an acceptable level of quality and the time required for their production represented a savings over previous manual procedures, staff was consulted about making a test run of the system. The full shelf ready processing of a minimum of 250 library books (roughly one truck) and 250 pieces of assorted audio visual materials was used as a preliminary system test. To effect the test, the researcher trained three members of the processing staff and coordinated same with the Processing Section Head. It was assumed at that point that procedural and configuration adjustments would have to be made to fine tune and maximize the productive potential of the system, during both the test run and throughout the remaining implementation phases.

During the test run it was determined that several format adjustments had to be made to determine those fields that would be printed or omitted from the catalog cards. These adjustments were effected quickly by a reconfiguration of the card printing options in the system software. It was found that Library of Congress Classification numbers were generally too long, especially for elementary students, and needed to be truncated at least by the first prime mark. Once the cards were acceptable, the next area of concern was label production for the spine, book pocket and check out card. It was decided, for several reasons, to continue spine label production under the previous manual method. Reasons included: an in place system that required only a minimal amount of time to produce them, a bulletin type size that was preferred by school media specialists because it was easier for students to read, and a heat application and label protection system that made labels last longer.

The most important factor was continuity. By maintaining the manual production method, newly processed materials would maintain the same appearance on the shelf as materials processed in previous years. It was felt by the researcher that, in this instance, the old method was superior and that to force a change here would compromise the overall quality of processed materials. With the method of spine label production determined, focus turned to the production of labels for the book card and pocket. Labels produced were acceptable in terms of format and printed quality but it was discovered that much time was lost in switching the printer over from card to label stock, and back again, especially for small batches of materials. Also, the labels were foil backed and the exact same size as the check out card. They had to be placed on the card most carefully. If a mistake was made, they could not be adjusted without destroying both the label and the card.

After some thought and experimentation, the researcher found that he could both suppress the spine label function and adjust the book card and pocket label print format. The result was that the book card could be inserted in the pocket, shifted to the left side of the pocket and pressure fed into the printer, thus printing the information directly on the card and pocket itself. This immediately seemed to please processing staff because the card and pocket could be inserted, printed, and backed out of the printer much easier and faster than the labels could be removed and applied. Also, from a financial point of view, a large existing stock of spine labels, book cards and pockets could be used while, at the same time, saving the ongoing expense of purchasing new label stock. Beyond saving two to three thousand dollars, it was felt that book cards and pockets looked far more professionally produced with the information printed directly on them. At this point the researcher was convinced that the production capabilities of new system were maximized without sacrificing quality. In this instance the system was modified to suit institutional specifications and procedures, rather than the other way around. The test run of the system was considered a success and the limited implementation phase was now ready to begin.

It was the researcher's hope that involving staff in the design of the configuration and the development of ancillary procedures as noted above would not only bring forth valuable ideas, but help both reduce any inordinate fears of automation and eliminate any preconceived biases about the system - pro or con. To prevent Hawthorne related effects from influencing any outcomes, the researcher made no mention to staff that the selection, configuration, implementation and evaluation of the system would be in any way involved in a study. The researcher stressed that the system would be just another "tool" to be used at their discretion in the cataloging and processing of media materials. The researcher found that staff was willing to give the system a fair chance to succeed but only if materials produced were of a comparable or superior quality to those previously produced manually. After the test run, printer ribbons and continuous form card stock were purchased in preparation for the limited implementation.

Once the above was completed, the system was ready to be implemented on a limited basis. During this phase, personnel training and use of the system was expanded gradually over a period of three months while maintaining a close watch on the quality of system produced materials at the final inspection station. Configuration adjustments and further fine tuning of the system was necessary throughout the limited implementation stage. Each time a new problem was identified, the researcher reconfigured the system to change output or revised temporary procedures. Once all the programming bugs were worked out and the system appeared to be producing materials at a satisfactory level of quality and speed, staff met again to make recommendations before the initiation of the full implementation stage. It was noted that staff was happy with the quality of system produced materials and saw no reason why the full implementation phase should not proceed as planned.

Several changes to enhance system operations were effected during the full implementation phase. First, three additional Hitachi 1502S CD-Rom drives and interface cards were purchased and installed to allow instant access to all database records without having to switch compact discs. The additional drives, however, appeared to cause the power supply in the CPU to blow. The original 650 watt power supply was replaced with a 800 watt unit and no further problems were noted. Second, a high speed letter quality printer was purchased and installed, permanently loaded with tractor fed catalog card stock. The new printer for catalog cards was used along with the existing dot matrix printer that was then dedicated to book card and pocket production. Third, it was quickly noted that book production had to stop for extended periods while the work station was being used to process audio visual materials. Since cataloging for most visual materials did not reside in the system database, data had to be manually entered. This manual data entry was beginning to dominate the only work station for longer and longer periods of time.

To solve the problem, a second IBM PC-XT was purchased and set up with BiblioFile catalog production software. The researcher created record templates conforming to the desired ISBD format for specific audio visual materials. It was soon possible for audio visual records to be generated according to the desired format and saved to floppy disk at this secondary work station without interrupting the flow of book processing. Once a batch of 250 AV records had been generated and saved on disk, it was a simple matter to load the disk onto the primary work station and print the catalog cards, check out cards and pockets in a short period of time. This worked so well that the full processing of all AV materials was able to be reinstated. Previously, only AV materials purchased under ECIA Chapter II funding or AV materials destined for school centers without a media clerk were processed. This expansion of service was well received by school based personnel.

The fourth change implemented consisted of the purchase and installation of a CD-ROM drive, interface card, and the CD-ROM AV-Online database for the secondary work station. The database, produced by NICEM (National Information Center for Educational Media) and distributed by SilverPlatter, provided the operator at the secondary work station with needed cataloging data for all non-print media published since 1900. Finally, it was necessary to revise the existing procedural handbook to include system operations for the cataloging and processing of print and non-print media materials. In that regard, the manual typing of catalog cards, book pockets and check out cards was eliminated. It was found to be substantially more expedient to enter the data once in MARC format at the primary or secondary work station and then let the system produce the card sets, check out cards and pockets. A complete discussion of revised cataloging and processing procedures can be found in Appendix B -- Revised Procedures. It was felt that this information will be of value to readers faced with similar problems relative to the implementation of any automated system designed to accomplish the cataloging and processing of media materials.

Throughout the implementation phase, the researcher expressed a firm commitment to staff that existing cataloging and processing standards (LC and AACR II for books and ISBD for audio visual materials) would be maintained. It was agreed any further procedural changes resulting from implementing the new system would be effected only after they have been fully reviewed by personnel involved. For the researcher, the implementation phase posed a variety of specific problems that had to be solved almost independently. Several listed users were contacted for information about their implementation efforts, but, since the researcher was one of the first users of the BiblioFile system, none was able to provide any new ideas that had not already been explored. This prevented the researcher from the option of consulting with a variety of experienced users having any greater knowledge of the system or who might suggest ancillary hardware or strategies that would point the researcher towards a more rapid or cost effective implementation.

Additionally, it was assumed that, because of budgetary and personnel constraints, the growth rate of the district and the existing work load that implementation could not be postponed and that solutions must be identified and employed rapidly. The researcher had to identify, in a short period of time, high quality yet cost effective methods to solve the institutional problem. The literature search was maintained throughout the duration of the implementation phases of the study. Users and the Library Corporation were queried for possible information relative to effective implementation strategies. Preliminary and follow up investigations by the researcher did not, however, show widespread BiblioFile usage among other Florida school districts. Also, other known users contacted appeared to be significantly further behind in the implementation stages than the researcher, himself. The result was that many of the changes and procedures noted above had to be developed independently by the researcher.

Throughout all implementation phases, it was necessary for the researcher to both periodically reconfigure system options to achieve desired output results and to install quarterly software and compact disc updates supplied by the Library Corporation. Quarterly updates usually represented the shipment of a new number four compact disc, accompanied by software revisions on floppy disk and an instruction sheet to assist with the installation. The new number four disc sent was an amended version of the previous number four disc that contained the MARC records and indices for new materials published since the last update. Often these updates also included other software improvements that enhanced the indexing and retrieval of records from floppy disk. Except for the July, 1987 update, all changes represented acknowledged improvements and did not affect the then current system configuration.

The July, 1987 update mandated that a record control number be entered and printed on the catalog card. This enhancement was designed to assist individual libraries in developing record indexing that would effect retrieval of prepared records from the compact discs or original records stored on the hard disk. This would allow individual libraries to use all records along with a newly created Catalog Maintenance Program and an Intelligent Catalog system designed for patron use. From the researcher's standpoint, the only desirable use of this enhancement for a central cataloging and processing center would be the generation of a district union catalog. How such a catalog would be generated was contingent on the results of a district automation study in progress. A procedural adjustment had to be effected to suppress this temporarily unwanted enhancement. No other problems were encountered with the Library Corporation supplied updates. The researcher felt that the final system configuration, arrived at after ten months of experimentation and change, might be of value to other users of the BiblioFile system. This information may be found in Appendix C -- Final System Configuration.

EVALUATION OF THE SYSTEM

Following the full implementation period, focus shifted to evaluating the effectiveness of the new system. It was felt by the researcher that evaluation of the of the system should take a two-pronged approach. First, the system should be evaluated for perceived effectiveness by school based media personnel - the end users of system produced materials. In that regard, the researcher felt that a well designed attitudinal survey distributed to the 103 school centers would be useful in determining perceived system effectiveness by school based personnel. The researcher designed an eleven item survey questionnaire that asked media personnel to rate system effectiveness, in several areas, from one (poor) to five (excellent). For help in enhancing design, the researcher consulted with two school based media specialists, a district level media supervisor and a district measurement expert to insure that survey items selected would address the concerns of media specialists, were agreed to have content validity and discriminated enough to provide accurate data.

Based on the recommendations from those consulted, the original eleven items proposed by the researcher were reduced to eight usable items. It was also recommended that the survey would be more effective if the results remained confidential. In that regard, survey forms were not numbered or identified by individual or school center names. Although, a specific return rate could not be assured through this procedure, it was agreed that responses received would more accurately reflect the attitudes of school based personnel. Issues specifically addressed in the instrument were the performance of the new system in comparison with materials previously produced under manual procedures, the physical quality, and, the accurate and consistent cataloging and processing of media materials for books and audio visuals. The final survey instrument as revised along with a cover letter and a self addressed stamped envelope, were mailed to school centers on June 9, 1987. The tabulation of survey results are presented in Chapter IV -- Presentations of Results. An interpretation of survey results can be found in Chapter V -- Interpretation, Conclusions, and Recommendations. The survey instrument itself and the cover letter can be found in Appendix D -- Survey Instrument.

The second approach was to have the system evaluated for administrative effectiveness via a time-cost study designed by the researcher to compare the productivity of the previous manual methods with production times and costs associated with the revised procedures resulting from system implementation. The researcher felt that the main focus of the time-cost study should not be on the initial capital outlay for new system equipment, since its total cost, after enhancements noted above, did not exceed $10,000. For that reason, initial equipment costs were exempted from the time-cost analysis. Also, it was felt that to compare initial BiblioFile capital investment costs with depreciated values of older equipment associated with the previous manual methods would produce data that most information professionals already had or could easily obtain. It was noted that the cost of supplies such as, ribbons, catalog card stock, labels, etc. were about the same under either the manual or automated procedures. The cost of these supply items was also exempted from the time-cost analysis.

The main thrust of the time-cost study was designed to measure and report production times and costs associated with the cataloging and processing of media materials. It was felt by the researcher that ongoing production times and salary costs far outweigh any initial equipment or supply expense, and would be of far more interest to information professionals. Using the technique of direct time measurement, personnel production time was recorded for the cataloging and processing of 250 library books and 250 pieces of audio visual materials under both the manual and automated procedures. A series of four flow charts, Figures 3 through 6, illustrating both the procedure and production times recorded are presented in Chapter IV -- Presentations of Results. Interpretations and projections, based on the time-cost study data is presented in Chapter V -- Interpretation, Conclusions, and Recommendations.

CHAPTER IV -- PRESENTATIONS OF RESULTS

The presentations of results that follow will be divided into the two categories used to evaluate the effectiveness of the implemented BiblioFile system. The first set of presentations will show the results of the attitudinal survey distributed to the 103 school media centers served by the researcher's institution. The second set of presentations will show the results of the administrative time-cost study designed and conducted by the researcher.

SURVEY RESULTS

The first part of the evaluative phase of the study involved a survey of district media specialists relative to their perceptions of the effectiveness of the implemented system. Results from the individual items are presented in the tables that follow. Compiled overall results for all survey items are found in Table 10 -- Overall Results. To assist the reader, the text of each individual survey item precedes its appropriate table. A complete text of the entire survey instrument and the accompanying cover letter, however, may be found in Appendix D -- Survey Instrument. The specific dataset characteristics relative to each survey item is presented immediately following its appropriate table.

Out of the 103 surveys mailed, 77 were returned, representing an anonymous return rate of 74.76 percent. For the purposes of this study, the return rate was considered adequate. Of the 77 surveys returned, there were noted occasional absent or no responses to one or more individual items. The number and percent of these absent responses are noted after each table in the presentation of item specific dataset characteristics, but were not included in the statistical computation of the item mean, median or mode, etc. Readers must remember that the rating scale for each item was as follows: 5=Excellent; 4=Good; 3=Average; 2=Below Average; 1=Poor. For clarity of data presentation, results will begin on the following page, with one page being allocated for each survey item.

ITEM #1

---- 1. Overall, How would you rate the physical quality and contents of catalog card sets and check out cards and pockets for library books?

Table 2.--Physical Quality (Books):

RESPONSE:	NUMBER:	PERCENT:
5	32	43.24%
4	33	44.59%
3	9	12.16%
2	0	0.00%
1	0	0.00%
TOTALS	74	100.00%

ITEM MEAN: 4.31
STANDARD DEVIATION: .676
ITEM MEDIAN: 4.00
ITEM MODE: 4.00

Specific dataset characteristics relative to survey item one as presented in Table 2 above include 3 absent responses, representing 3.90 percent. It is noted that responses for this item was found to range between a high of five and a low of three. No responses were found to be resident in choices one or two. For that reason, the results for this item are found to be extremely skewed to the right. This is evidenced by a high correlation between the measures of central tendency noted above.

ITEM #2

---- 2. Overall, How would you rate the physical quality and contents of catalog card sets and check out cards and pockets for AV materials?

Table 3.--Physical Quality (AV):

RESPONSE:	NUMBER:	PERCENT:
5	31	41.89%
4	34	45.94%
3	8	10.81%
2	1	1.35%
1	0	0.00%
TOTALS	74	100.00%

ITEM MEAN: 4.28
STANDARD DEVIATION: .707
ITEM MEDIAN: 4.00
ITEM MODE: 4.00

Specific dataset characteristics relative to survey item two as presented in Table 3 above include 3 absent responses, representing 3.90 percent. It is noted that responses for this item was found to range between a high of five and a low of two. Although the range of responses is extended by one more than item one results, note that this was caused by only a singular response. No responses were found in choice one for this item. For that reason, the results for this item are also found to be extremely skewed to the right and closely related to item one responses.

ITEM #3

---- 3. How would you rate the format of cataloged and processed print and non-print materials in terms of reflecting approved standards (Library of Congress, AACR II and the ISBD format)?

Table 4.--Standard Format:

RESPONSE:	NUMBER:	PERCENT:
5	25	34.72%
4	37	51.39%
3	10	13.89%
2	0	0.00%
1	0	0.00%
TOTALS	72	100.00%

ITEM MEAN: 4.21
STANDARD DEVIATION: .665
ITEM MEDIAN: 4.00
ITEM MODE: 4.00

Specific dataset characteristics relative to survey item three as presented in Table 4 above include 5 absent responses, representing 6.49 percent. It is noted that responses for this item was found to range between a high of five and a low of three. No responses were found to be resident in choices one or two. For that reason, the results for this item, as was found with items one and two, are extremely skewed to the right. Measures of central tendency and the standard deviation presented in the preceding table show evidence of this positive skew.

ITEM #4

---- 4. In terms of being able to locate the material, how would you rate the completeness of information that is provided on the catalog cards for books?

Table 5.--Completeness (Books):

RESPONSE:	NUMBER:	PERCENT:
5	33	45.20%
4	36	49.31%
3	4	5.48%
2	0	0.00%
1	0	0.00%
TOTALS	73	100.00%

ITEM MEAN: 4.40
STANDARD DEVIATION: .595
ITEM MEDIAN: 4.00
ITEM MODE: 4.00

Specific dataset characteristics relative to survey item four as presented in Table 5 above include 4 absent responses, representing 5.19 percent. It was noted that responses for this item was found to range between a high of five and a low of three. There were only four responses to choice three and no responses were found to be resident in choices one or two. The standard deviation for this item is the lowest of all individual survey item results. The results from this item are also found to be highly skewed to the right. The mean, median, and mode, and a standard deviation in the above table show evidence of this phenomena.

ITEM #5

---- 5. In terms of being able to locate the material, how would you rate the completeness of information that is provided on the catalog cards for AV?

Table 6.--Completeness (AV):

RESPONSE:	NUMBER:	PERCENT:
5	28	38.36%
4	38	52.05%
3	5	6.85%
2	1	1.37%
1	1	1.37%
TOTALS	73	100.00%

ITEM MEAN: 4.25
STANDARD DEVIATION: .725
ITEM MEDIAN: 4.00
ITEM MODE: 4.00

Specific dataset characteristics relative to survey item five as presented in Table 6 above include 4 absent responses, representing 5.19 percent. It is noted that responses for this item was found to include all possible choices ranging between a high of five and a low of one. Although there was a full range of responses, choices one, two, and three accounted for less that ten percent of the total. Also, the highest rate of response for any item, 52.05 percent, was registered for choice four. Therefore, the measures of central tendency noted in the above table illustrate that the results for this item are found to be highly skewed to the right.

ITEM #6

—— 6. How do you rate the Dewey Decimal classifications and designations for fiction, biography, etc. used on book and AV catalog cards, in terms of conforming to your media center's processing specifications?

Table 7.--Classifications:

RESPONSE:	NUMBER:	PERCENT:
5	27	36.49%
4	31	41.89%
3	14	18.92%
2	1	1.35%
1	1	1.35%
TOTALS	74	100.00%

ITEM MEAN: 4.11
STANDARD DEVIATION: .847
ITEM MEDIAN: 4.00
ITEM MODE: 4.00

Specific dataset characteristics relative to survey item six as presented in Table 7 above include 3 absent responses, representing 3.90 percent. It is noted that responses for this item was found to include all possible choices ranging between a high of five and a low of one. Here, choices one, two, and three accounted for over twenty percent of the total choices made by respondents. Therefore, the standard deviation of .847 noted in the above table approaches its highest level in the results for any individual item. Nonetheless, results are still found to be highly skewed to the right.

ITEM #7

---- 7. How would you rate catalog cards received in terms of having enough tracings (subject headings)?

Table 8.--Subject Headings:

RESPONSE:	NUMBER:	PERCENT:
5	31	41.33%
4	39	52.00%
3	2	2.67%
2	2	2.67%
1	1	1.33%
TOTALS	75	100.00%

ITEM MEAN: 4.29
STANDARD DEVIATION: .762
ITEM MEDIAN: 4.00
ITEM MODE: 4.00

Specific dataset characteristics relative to survey item seven as presented in Table 8 above include 2 absent responses, representing 2.60 percent. In this dataset, responses are registered for all the available choices but less than eight percent was registered in choices one, two, or three. Also, a high response rate of 52.00 percent was noted for choice 4 of this item. Because of this, and the high correlation between the measures of central tendency noted above, results based on survey question seven are skewed to the extreme right.

ITEM #8

---- 8. How would you rate the information printed on the check out cards and pockets?

Table 9.--Cards and Pockets:

RESPONSE:	NUMBER:	PERCENT:
5	36	47.37%
4	32	42.11%
3	6	7.89%
2	1	1.31%
1	1	1.31%
TOTALS	76	100.00%

ITEM MEAN: 4.33
STANDARD DEVIATION: .784
ITEM MEDIAN: 4.00
ITEM MODE: 5.00

Specific dataset characteristics relative to survey item eight as presented in Table 9 above include 1 absent response, representing 1.30 percent. The results for this item show the lowest amount of absent responses of all survey items. In this item, responses ranged from five to one, but were so positively skewed that that the mode was raised from 4.0 to 5.0. Other measures of central tendency noted in the previous table, however, continue to show a high level of correlation and a continued positive skew.

Table 10.--Overall Survey Results:

POSSIBLE RESPONSE	NUMBER OF RESPONSES	PERCENT
5	243	41.11%
4	280	47.38%
3	58	9.82%
2	6	1.01%
1	4	0.68%
TOTALS	591	100.00%

OVERALL MEAN: 4.27
OVERALL STANDARD DEVIATION: .723
OVERALL MEDIAN: 4.00
OVERALL MODE: 4.13

Overall dataset characteristics include a overall survey return rate of 74.76 percent, represented by 77 anonymous returns out of 103 surveys sent. The measures of central tendency noted above in Table 10 -- Overall Survey Results, are much in line with the data characteristics noted in the individual survey item results. Choices four, five, three, two and one were given priority by respondents, in that order. Overall, of the 77 surveys returned, there were 25 absent or no responses for the total 616 possible responses. These absent responses represented 4.06 percent of the total possible and were not included in the calculation of the item or overall results. There are no dramatic changes in results noted between the individual item and overall results.

A complete analysis and interpretation of the the survey results presented above will be provided in Chapter V -- Interpretation, Conclusions, and Recommendations. Results of the time-cost study are presented below.

TIME-COST STUDY

The models that follow were developed to assist with the time-cost study section of the evaluation phase of the project. On reviewing the previous and revised procedures, the researcher found that many of the operations remained the same under both the new and old set of procedures and were not changed by the results of this study. Specifically, the time and costs related to unpacking books, filling book trucks, spining books, covering books, inspecting books, or re-packing books have not changed in any way. Since the evaluative phase of the study was to assess the time-cost data directly related to the cataloging and processing functions, the researcher felt it best to focus in on operations 3, 4, and 5, (from Appendix B -- Revised Procedures), that specifically addressed these issues and to refrain from presenting data that did not pertain.

To provide for a comparative analysis, the researcher found it necessary to convert narrative information, and current practice, from the old and revised procedures for the cataloging and processing of books and audio visual materials into a series of four flow charts. Figure 3 is a model of the old procedures for library book cataloging and processing. Figure 4 is a model of the revised procedures for library book cataloging and processing. Figure 5 is a model of the old procedures for audio visual material cataloging and processing. Figure 6 is a model of the revised procedures for audio visual material cataloging and processing. In these figures, the reader can see that each operation is broken down into its sub-entities or steps that provided the framework for the time-cost analysis.

Once the models were in place, the researcher was able to physically time each step involved in the cataloging and processing function for 250 books and 250 pieces of audio visual materials under both the old and revised procedures. Timed results are shown in parenthesis and are recorded in minutes. Following each of the models represented by its appropriate figure is a narrative summary of pertinent characteristics for each set of timed procedures. Finally, the researcher assigned a flat hourly rate of $10.00 per hour to determine the costs resulting from the system implementation. These costs are reflected in Tables 11-13 that show overall and projected results from the time-cost analysis. For clarity of presentation, Figure 3 begins on the following page.

FIGURE 3: CATALOGING AND PROCESSING 250 LIBRARY BOOKS UNDER THE OLD SET OF PROCEDURES

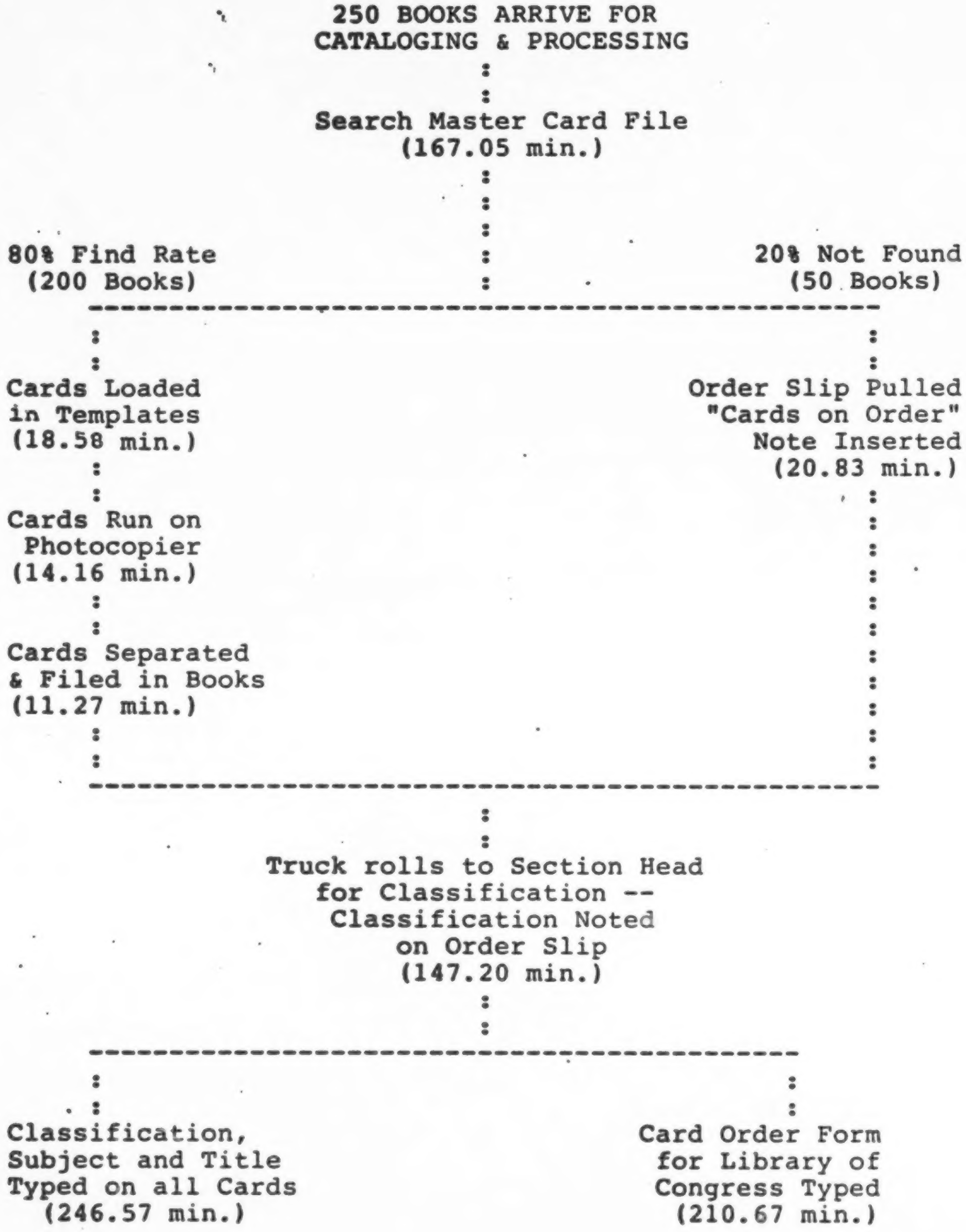
250 BOOKS ARRIVE FOR CATALOGING & PROCESSING
Search Master Card File (167.05 min.)
80% Find Rate (200 Books)
20% Not Found (50 Books)
Cards Loaded in Templates (18.58 min.)
Order Slip Pulled "Cards on Order" Note Inserted (20.83 min.)
Cards Run on Photocopier (14.16 min.)
Cards Separated & Filed in Books (11.27 min.)
Truck rolls to Section Head for Classification -- Classification Noted on Order Slip (147.20 min.)
Classification, Subject and Title Typed on all Cards (246.57 min.)
Card Order Form for Library of Congress Typed (210.67 min.)

Figure 3 (Continued)

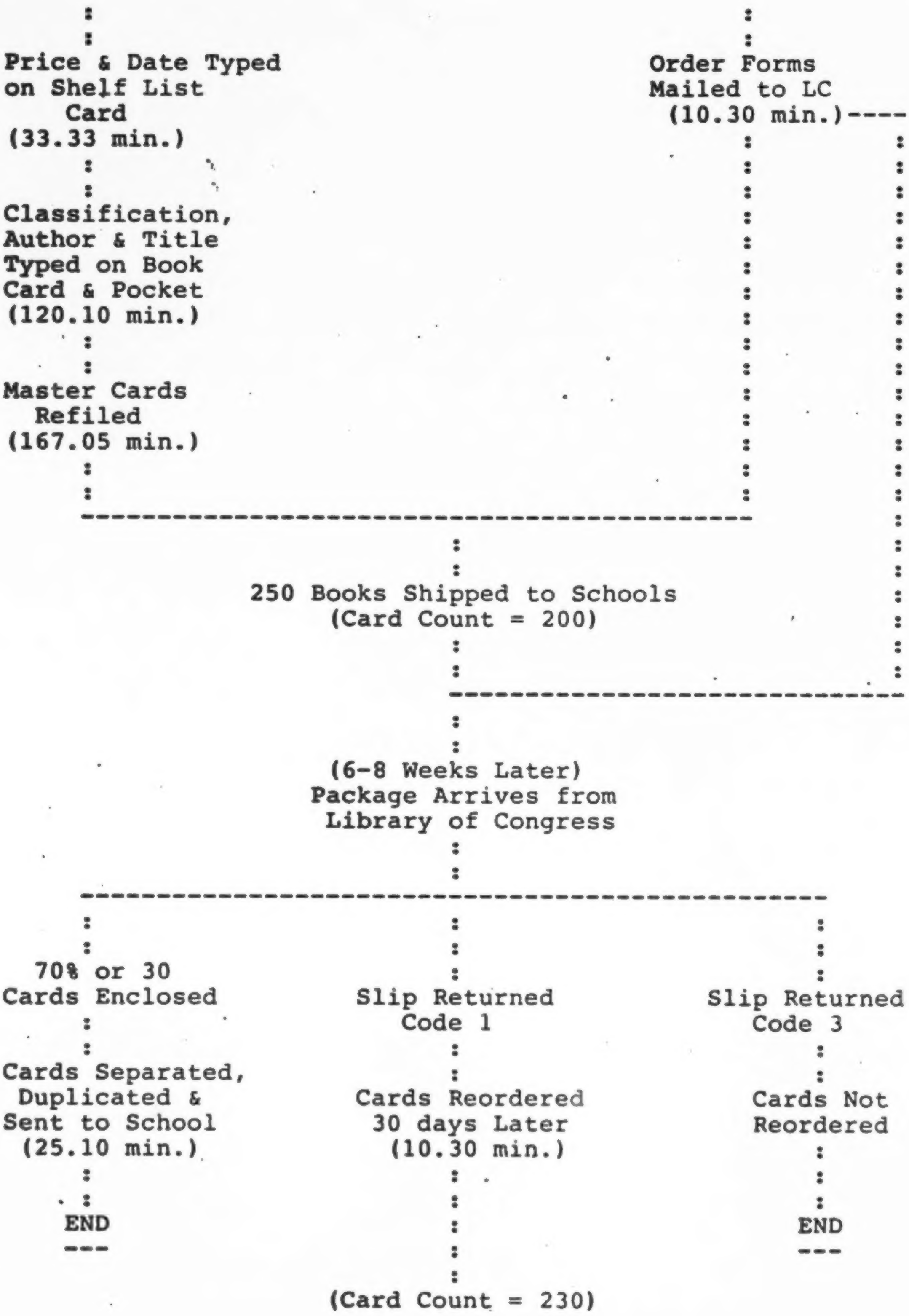
Price & Date Typed on Shelf List Card (33.33 min.)
Order Forms Mailed to LC (10.30 min.)
Classification, Author & Title Typed on Book Card & Pocket (120.10 min.)
Master Cards Refiled (167.05 min.)
250 Books Shipped to Schools (Card Count = 200)
(6-8 Weeks Later) Package Arrives from Library of Congress
70% or 30 Cards Enclosed
Slip Returned Code 1
Slip Returned Code 3
Cards Separated, Duplicated & Sent to School (25.10 min.)
Cards Reordered 30 days Later (10.30 min.)
Cards Not Reordered
END
END
(Card Count = 230)

Figure 3 (Continued)

```
                              :
                              :
                      (6-8 Weeks Later)
                    Package Arrives from
                     Library of Congress
                              :
                              :
     -------------------------------------------------
     :                        :                        :
  40% or 8                    :                        :
Cards Enclosed          Slip Returned            Slip Returned
     :                     Code 1                   Code 3
     :                        :                        :
Cards Separated,              :                        :
Duplicated &              Cards Not                Cards Not
Sent to School            Reordered                Reordered
 (15.10 min.)                 :                        :
     :                        :                        :
     :                       END                      END
     :                       ---                      ---
(Card Count = 238)
     :
     :
In-House Cards
 Produced and
Sent to School
(120.00 min.)
     :
     :
Card Count = 250
     :
     :
Total Time (Minus
LC Delivery Time):
1337.61 Minutes
22.2935 Hours
     :
     :
Average Cataloging
& Processing Time
   Per Book:
5.3504 Minutes
     :
     :
    END
    ---
```

In Figure 3: Cataloging and Processing 250 Library Books Under the Old Set of Procedures, the cataloging and processing options and the production time required for each stage of the procedures are illustrated. Under the old procedures for cataloging and processing library books it was noted that staff had three options relative to the production of processing materials. First, titles were searched for in the master file. If a main entry card for the title was located, it was reproduced and headings were manually typed on title and subject entry cards. Also, price and date information was manually typed on the shelf list card. Under this first option, book cards, book pockets and spine labels were manually produced. The second option involved ordering catalog card sets by mail from the Library of Congress. If cards were received by return mail, book cards and pockets and spine labels were manually produced for each title. It was noted that catalog card sets were often ordered twice over a twelve to sixteen week period.

The third option, manual production from scratch, of all processing materials was the most time consuming and was used only when options one and two had proven unsuccessful. It must be noted that delivery times from the Library of Congress were excluded from the time-cost analysis and that only staff time spent preparing the card order forms, etc., are noted in Figure 3 above. Figure 3 represents the most complicated and longest run of sub routines.

FIGURE 4: CATALOGING AND PROCESSING 250 LIBRARY BOOKS UNDER THE REVISED PROCEDURES

```
                    250 BOOKS ARRIVE FOR
                  CATALOGING & PROCESSING
                            :
                            :
                    Search BiblioFile
                     LC MARC Database
                       (45.83 min.)
                            :
                            :
                            :
77% Find Rate               :          23% Not Found
 (193 Books)                :            (57 Books)
     ---------------------------------------
     :                                     :
     :                                     :
Modify Records                      Search Master File
 (61.11 min.)                           (47.60 min.)
     :                                     :
     :                                     :
Save Modified               61% Find Rate  :  39% Not Found
Records to Disk             (35 Books)     :     (22 Books)
  (12.86 min.)              -------------------------
     :                      :                        :
     :                      :                        :
Batch Print Cards        Cards Loaded                :
(102.93 min)             in Templates                :
     :                    (3.25 min.)                :
     :                      :                        :
Print Book Cards            :                        :
  and Pockets            Cards Run On                :
 (19.30 min.)             Photocopier                :
     :                    (2.47 min.)                :
     :                      :                        :
     :                      :                        :
     :                 Cards Separated               :
     :                 & Filed in Books              :
     :                   (1.97 min.)                 :
     :                      :                        :
     :                      :                        :
     :                  Master Cards                 :
     :                    Refiled                    :
     :                  (19.68 min.)                 :
     :                      :                        :
     :                      :                        :
     :                      -------------------------
     :                                    :
```

Figure 4 (Continued)

```
:                                     :
:                        Truck rolls to Section Head
:                           for Classification --
:                           Classification Noted
:                              on Order Slip
:                               (33.56 min.)
:                                     :
:                                     :
:                      -------------------------
:                      :                        :
:                      :                        :
:                Class, Subject &         Original MARC
:               Title Typed on all         Record Typed
:                Catalog Cards             into System
:                  (43.14 min.)            (23.83 min.)
:                      :                        :
:                      :                        :
:                  Price & Date             Cards Batch
:                 Typed on Shelf              Printed
:                   List Cards              (11.73 min.)
:                  (5.83 min.)                  :
:                      :                        :
:                      :                  Card & Pocket
:                 Classification,             Printed
:                 Author & Title            (2.20 min.)
:                  Typed on Card                :
:                   and Pocket                  :
:                  (21.01 min.)                 :
:                      :                        :
:                      :                        :
:                      -------------------------
:                                    :
:                                    :
--------------------------------------
                    :
                    :
              Materials Filed
                in Books for
                  Shipment
              Card Count = 250
                    :
                    :
                 Total Time:
              480.27 Minutes
               8.0046 Hours
          Average Cataloging and
        Processing Time Per Book:
               1.9204 Minutes
                    :
                    :
                   END
                   ---
```

In Figure 4: Cataloging and Processing 250 Library Books Under the Revised Procedures, the cataloging and processing options for library books under these procedures and the production time required for each stage or sub-routine are illustrated. Under these procedures, it was noted that staff options, relative to the production of processing materials, were also three. Under the first option, titles were searched for in the BiblioFile LC MARC database. If located, the MARC record was modified to individual school school specifications, and all processing materials were later produced. Option two, searching for titles in the master file, is identical to the first option in Figure 3. In that regard, if a main entry card for the title was located, it was reproduced and headings were manually typed on title and subject entry cards. Also, price and date information was manually typed on the shelf list card. Under this second option, book cards, book pockets and spine labels were manually produced.

The third option, original catalog production with the BiblioFile system, was used when titles were not located in the system database or the master file. It is also noted that Figure 4 represents a less complicated set of procedures and a much shorter run of sub routines.

FIGURE 5: CATALOGING AND PROCESSING 250 PIECES OF AUDIO VISUAL MATERIALS UNDER THE OLD PROCEDURES

```
                 250 PIECES OF AV ARRIVE FOR
                   CATALOGING & PROCESSING
                              :
                              :
                              :
    30% Arrive                :               70% Arrive
 With Catalog Kits            :               Unprocessed
  (75 Pieces)                 :               (175 Pieces)
     ------------------------------------------------
     :                                          :
     :                                          :
 Material Shipped                          Original Card
 to School Center                          Produced from
     :                                        Scratch
     :                                    (1750.00 min)
    END                                         :
    ---                                         :
                                           Cards Loaded
                                           in Templates
                                           (16.25 min.)
                                                :
                                                :
                                           Cards Run on
                                            Photocopier
                                           (12.39 min.)
                                                :
                                                :
                                        Cards Separated &
                                       Filed With Material
                                           (9.86 min.)
                                                :
                                                :
                                        Classification,
                                        Subject and Title
                                       Typed on all Cards
                                          (215.74 min.)
                                                :
                                                :
                                        Price & Date Typed
                                          on Shelf List
                                              Card
                                          (29.16 min.)
                                                :
                                                :
```

Figure 5 (continued)

Classification,
Author & Title
Typed on Book
Card & Pocket
(105.08 min.)
:
:
Original Cards
filed
(146.16 min.)
:
:
Material Shipped
to School Center
:
:
Card Count = 250
:
:
Total Time:
2284.64 Minutes
38.0773 Hours
:
:
Average Cataloging &
Processing Time Per
Piece of AV:
13.0550 Minutes
:
:
END
---

In Figure 5: Cataloging and Processing 250 Pieces of Audio Visual Materials Under the Old Procedures, it is noted that staff had no real options available regarding the production of processing materials for audio visuals. The material either arrived with catalog kits or it did not. If a catalog kit was available, then it was simply shipped along with the material to the appropriate school center. If cataloging was not provided, it had to be manually generated, in much the same way, as the processing materials for books as noted in Figure 3. It was discovered that this run of procedures to effect manual production of audio visual materials was significantly less complicated and shorter than corresponding procedures for library books. The specific procedures involved in this manual production and the time required for each stage are shown in Figure 5 above.

FIGURE 6: CATALOGING AND PROCESSING 250 PIECES OF AUDIO VISUAL MATERIALS UNDER REVISED PROCEDURES

250 PIECES OF AV ARRIVE FOR
CATALOGING & PROCESSING

30% Arrive
With Catalog Kits
(75 Pieces)

Material Shipped
to School Center

END

70% Arrive
Unprocessed
(175 Pieces)

Original MARC Record
& Classification
(Based on Physical
Examination of Material)
Typed Into System
(702.78 min.)

Original Records
Saved to Disk
(11.66 min.)

Cards Batch
Printed
(93.30 min.)

Card and Pocket
Printed
(17.50 min.)

Material Shipped
to School Center

Card Count = 250

Total Time:
825.24 Minutes
13.7540 Hours.

Figure 6 (Continued)

Average Cataloging
& Processing Time
Per Piece of AV:
4.7156 Minutes.
:
:
END

In Figure 6: Cataloging and Processing 250 Pieces of Audio Visual Materials Under Revised Procedures, it was noted that staff, as in Figure 5, had no real options available regarding the production of processing materials for audio visuals. Again, the material either arrived with catalog kits or it did not. If a catalog kit was available, then it was simply shipped along with the material to the appropriate school center. However, if cataloging was not provided, in this instance, the BiblioFile system was used to produce an original MARC record. This was much the same as the third option in Figure 4. It was discovered that this run of procedures to effect the production of audio visual materials was significantly less complicated and shorter than corresponding procedures for the manual production of audio visuals illustrated in Figure 5. The specific procedures involved and the time required for each stage are shown in Figure 6 above.

With the individual timed results from the models represented in Figures 3-6 complete, focus shifted to the comparative time-cost aspects of the study. In effect, the time phase of the time-cost study had been completed. It was now necessary to assign the predetermined cost rate of ten dollars per hour to the timed results. This would provide readers with a dollar figure that would be of value to information managers contemplating the implementation of the BiblioFile system in their institutions. Table 11: Overall Time-Cost Study Results, shown below, summarizes the timed results from figures three through six and the the associated costs related to the cataloging and processing of 250 library books and 250 pieces of audio visual material under the old and revised procedures.

Table 11.--Overall Time-Cost Study Results

Number	Medium	Procedure	Time in Hours	Hourly Rate	Total Cost
250	Books	Old	22.3935	10.00	222.94
250	Books	Revised	8.0046	10.00	80.05
250	AV	Old	38.0773	10.00	380.77
250	AV	Revised	13.7540	10.00	137.54
Combined Results:					
500	Bks/AV	Old	60.3708	10.00	603.71
500	Bks/AV	Revised	21.7586	10.00	217.56

Table eleven gives useful information relative to the time and costs involved in cataloging and processing a specified amount of books and audio visual materials. Although it is valuable to know times and costs required to catalog and process 250 books and 250 pieces of audio visual materials, the researcher felt that information professionals would be far more interested in weekly, monthly, and yearly projections based on actual FY87 production data

Tables 12 and 13 show the FY87 production rate for each medium along with its corresponding times and costs. Table 12 shows the times and costs associated with cataloging and processing books and audio visual materials under the old procedures. Table 13 shows the times and costs associated with cataloging and processing books and audio visual materials under revised procedures.

Table 12.--Weekly, Monthly and Yearly Projections Under the Old Procedures

WEEKLY PROJECTION UNDER THE OLD PROCEDURES:

Medium:	No.:	Unit Time:	Total Time:	Cost:
Library Books	322	5.3504 min.	28.7138 hrs.	$287.14
Audio Visual	311	13.0550 min.	67.6684 hrs.	$676.68
Total for both mediums			96.3822 hrs.	$963.82

MONTHLY PROJECTION UNDER THE OLD PROCEDURES:

Medium:	No.:	Unit Time:	Total Time:	Cost:
Library Books	1267	5.3504 min.	112.9826 hrs.	$1129.83
Audio Visual	1225	13.0550 min.	266.5396 hrs.	$2665.39
Total for both mediums			379.5222 hrs.	$3795.22

YEARLY PROJECTION UNDER THE OLD PROCEDURES:

Medium:	No.:	Unit Time:	Total Time:	Cost:
Library Books	15203	5.3504 min.	1355.7021 hrs.	$13557.02
Audio Visual	14695	13.0550 min.	3197.3870 hrs.	$31973.87
Total for both mediums			4553.0891 hrs.	$45530.89

Table 13.--Weekly, Monthly and Yearly Projections Under Revised Procedures

WEEKLY PROJECTION UNDER REVISED PROCEDURES:

Medium:	No.:	Unit Time:	Total Time:	Cost:
Library Books	322	1.9204 min.	10.3061 hrs.	$103.06
Audio Visual	311	4.7156 min.	24.4425 hrs.	$244.42
Total for both mediums			34.7486 hrs.	$347.48

MONTHLY PROJECTION UNDER REVISED PROCEDURES:

Medium:	No.:	Unit Time:	Total Time:	Cost:
Library Books	1267	1.9204 min.	40.5524 hrs.	$405.52
Audio Visual	1225	4.7156 min.	96.2768 hrs.	$962.77
Total for both mediums			136.8292 hrs.	$1368.29

YEARLY PROJECTION UNDER REVISED PROCEDURES:

Medium:	No.:	Unit Time:	Total Time:	Cost:
Library Books	15203	1.9204 min.	486.5973 hrs.	$4865.97
Audio Visual	14695	4.7156 min.	1154.9290 hrs.	$11549.29
Total for both mediums			1641.5263 hrs.	$16415.26

It is hoped that the projections presented in Tables 12 and 13 give readers a better understanding of the production times and associated costs that must be expected over the long term concerning possible BiblioFile system implementation. The results presented in Tables 12 and 13 are projections based on FY87 projection data and illustrates the time-cost aspects of the study by showing the comparative times and costs associated with both manual and BiblioFile system production procedures.

A complete analysis and interpretation of results from both the attitudinal survey and the time-cost study will be provided in Chapter V -- Interpretation, Conclusions, and Recommendations.

CHAPTER V -- INTERPRETATIONS, CONCLUSIONS AND RECOMMENDATIONS

INTERPRETATION OF RESULTS:

A concerted effort was made by the researcher in the design of both the survey instrument and the time-cost study that would allow the results to be easily understood by all professionals, not just those well versed in measurement and evaluation. Although a far more lengthy format could have been devised to present the results, it was the researcher's feeling that a more straight forward and bottom-line presentation of results would be appreciated. Also, since the researcher designed the evaluative mechanisms and reported the results, he did not feel comfortable with also serving as judge and jury, in terms of interpreting results that could not be easily verified by the average reader.

It was felt that readers would easily understand the data display resulting from the eight item attitudinal survey based on a five point measurement scale. Similarly, it was felt, for the time-cost study, that each reader could easily understand direct timed measurement of sequenced events and the assignment of a dollar value to each hour of time expended on a particular task. Also, it was hoped, for both the survey and time-cost study, that this method of presentation would more readily assist the reader in quickly determining the positive and negative aspects regarding any possible implementation of this technological medium in their own institutional setting.

Although the reader may easily draw his own conclusions, there are several observations, based on evaluative results, that the researcher feels worthy of note. These observations or interpretations will be presented as follows under their appropriate classification, for both the attitudinal survey and the time-cost study.

Attitudinal Survey:

It must be noted here that what constitutes the proper cataloging and processing of print and non-print media materials remains (as it has been for many years) the single most heated issue among librarians. Many media professionals will constantly debate about the format of processing materials - where on the catalog card the long dash or the slash mark should be precisely placed, etc. Therefore, any survey instrument presented to a diverse group of librarians (such as the one in this study) to assess fully their views about the suitability of such processed materials for their individual collections is bound to be subjected to a most intense scrutiny.

Most librarians will acknowledge the need for a standardization of cataloging resulting in uniformly produced processing materials. Unfortunately, the researcher found that there was always an exception to the acknowledged standard that related to the specific needs of the individual media specialist's own collection. For instance, a recent change in the dewey decimal classification for works dealing with computers was not welcomed by many media specialists because, to keep their computer books together, they either had to change the new classification on newly processed materials back to the old number on the spine label, book card and pocket, and all catalog cards or change classifications on the same processing materials for the old books and reshelve them in the new area.

Elementary schools wanted shorter than standard classifications for their student books and longer than standard classifications for their professional books. The district Professional Library wanted their classifications carried out to the maximum provided by the Library of Congress because of a high concentration of materials in the education field. Virtually every school collection had an important reason to request a variance from the acknowledged standard. It was was soon realized by the researcher, to totally satisfy everyone, he would have had to design 103 totally separate configuration programs designed specifically for each collection in the district. This would have been not only impossible to effect, but also would have resulted too many sets of standards that would hamper any future automated efforts.

Therefore, the focus of the study was on the development of a generic format for processing materials that would satisfy most organizational needs. Media specialists could make classification adjustments for their individual collections on receipt of the material. It was noted that any uniform standard, no matter how well designed and implemented, could not be expected to receive unanimous acceptance among such a diverse group of media professionals. Because of this, the researcher was expecting an attitudinal survey mean around 3.00 or 3.50 before receipt of the completed surveys. The overall mean of 4.27 with a standard deviation of .723 for all eight items, based on a 74.76% anonymous return rate, was indeed unexpected. This overall "B+" rating seemed to be consistent throughout each of the eight survey items and led the researcher to the conclusion that the study was a complete success as viewed by school based personnel.

Survey item one was used to determine how school based media specialists felt about the physical quality of processing materials for library books. Interpreting results presented in Table 2 -- Physical Quality (Books), that show a mean of 4.31 and a standard deviation of .676, the researcher felt that the physical quality of processing materials for library books was viewed favorably by school based personnel. By the most conservative interpretation, it was felt results from this item showed that media specialists were significantly more comfortable with the physical quality of system produced processing materials for library books than materials produced previously.

Item one was used to assess how school based personnel felt about the physical quality of system produced processing materials for library books, survey item two was used to determine how they felt about the physical quality of processing materials for audio visuals. Interpreting results presented in Table 3 -- Physical Quality (AV), that show a mean of 4.28 and a standard deviation of conservative interpretation of results for this item showed that media specialists felt significantly more comfortable with the physical quality of system produced processing materials for audio visuals than materials produced under the previous manual methods. There was a strong correlation between the results for items one and two. The researcher felt this was because card stock and print quality were identical for system produced materials regardless of format.

Survey item three queried media specialists about the conformity of processed materials for books and audio visuals with approved LC, AACR II, and ISBD standards. The researcher already knew that, depending on the material, appropriate standards were observed. The purpose of item three was to see if school based media specialists perceived this to be the case. Interpreting results presented in Table 4 -- Standard Format, that show a mean of 4.21 and a standard deviation of .665, the researcher felt comfortable believing that compliance to approved standards was perceived as being highly favorable by school based media personnel. In that regard, results from this item strongly showed that media specialists felt at least as comfortable with the format of system produced processing materials for library books and audio visuals as materials produced under the previous manual methods.

Survey item four assessed the completeness of information on system produced catalog cards for library books. Table 5 -- Completeness (Books), showed a mean of 4.40 and a standard deviation of .595. This led the researcher to believe that catalog card information resulting from system production for library books was viewed by school based personnel as being more than adequate for their individual needs. Along the same lines, item five assessed the completeness of information on system produced catalog cards for audio visuals. Table 6 -- Completeness (AV), that showed a mean of 4.25 and a standard deviation of .754, led the researcher to the conclusion that catalog card information, resulting from system production for audio visuals, was also viewed by school based personnel as being more than adequate for their individual needs. Results from item four and five were found to have a strong correlation with each other.

It must be noted that the high positive correlation of results for items four and five was not at all expected since most of the book catalog cards were produced from BiblioFile resident LC data while cards for audio visuals were the result of original data entry by the researcher's staff, based on a physical inspection of the material. The researcher expected a much lower average responses relative to the completeness of information provided for audio visuals because of human error in data entry and the inherent complexity of cataloging non print media for a diverse group of recipients. Nonetheless, both items four and five showed that media specialists felt significantly more comfortable with the completeness of information provided on catalog cards that were produced via the BiblioFile system than materials produced under the old manual set of procedures.

Survey item six asked media specialists to rate the dewey decimal classifications on processing materials for books and audio visuals in terms of suitability to individual collections. Because of the generic classification system used and the intensity of current professional debate in this regard, the researcher was expecting to receive a mean near 3.00 for this item. On reviewing results from item six as presented in Table 7 -- Classifications, the researcher was surprised to note that the mean had remained above 4.00. With a mean of 4.11 and a standard deviation of .847, the researcher interpreted results to support the conclusion that most media personnel were happy with the classifications as compared to non system produced materials. It was noted in results for this item that the mean reached its lowest point for all survey items and the standard deviation was at its highest. The researcher was pleased with the results for this item considering the diversity of expressed classification needs.

Survey item seven asked media specialists to rate system produced catalog cards for books and audio visuals, in terms of providing enough tracings or subject headings, for their needs. Interpreted results from item seven as presented in Table 8 -- Subject Headings, show a mean of 4.29 and a standard deviation of .762, indicating a high level of satisfaction with the number of tracings or subject headings provided on system produced catalog cards. For this item, roughly seven percent of total respondents thought the number of tracings were average or below while ninety three percent rated them above average or excellent.

Item eight was used to find out how media specialists felt about the suitability of information printed on the check out cards and pockets. The purpose of this item was to determine if card and pocket information was viewed as being adequate for their individual needs. Also, the researcher hoped to use this item to ascertain whether media specialists might have a problem with the dot matrix print style used for these materials as opposed to the letter quality print style used for catalog cards. Interpreting results from Table 9 -- Cards and Pockets, the researcher felt that the information provided on cards and pockets was viewed as more than adequate for school based personnel. Also, from an economic standpoint, he did not feel justified, based on a mean of 4.33 and a standard deviation of .784, to request an additional letter quality printer for book card and pocket production. It was noted, however, that should this later become an important concern for media specialists, movement toward that acquisition could always be considered.

Finally, once individual survey items have been analyzed, focus turned to an interpretation of the overall results as presented in Table 10 -- Overall Survey Results. It was the researcher's opinion that individual item results were most valuable in terms of identifying the perceptions of media specialists on particular key issues relative to the study. Nonetheless, the overall results provided the necessary bottom line information that managers would prefer to review about the total success of the project as perceived by school based media personnel. In interpreting overall survey results, it can be seen that over forty one percent of all respondents rated system production as excellent. Over forty seven percent rated system production above average. Another ten percent of respondents thought system produced materials should be rated at an average level. Just over one percent rated system production below average and less than one percent thought is was poor.

The mean for overall results was 4.27 with a standard deviation of .723. The researcher conservatively interpreted this to be a strong B+ rating from school based personnel relative to the overall success of the project. The researcher was pleased with this rating that shows a high level of overall success of the project, but notes that there is room for future improvement as the project evolves. It was noted that overall results did not, nor were they expected to, reflect any dramatic changes from the individual results already presented. The overall results are useful in terms of presenting important conclusive information relative to the success of this project that information managers contemplating BiblioFile implementation would find of particular interest.

Time-Cost Study:

To assess the administrative benefits or negative aspects resulting from system implementation, the researcher needed to measure the production times involved for books and audio visual materials under both the old and revised procedures. With direct time measurement data known to be accurate, the researcher recorded the production times for each step in the cataloging and processing functions in a series of four flow charts presented in chapter four. The flow charts represented by Figures 3-6 showed the results of direct time measurement data for 250 books and audio visuals, first under the former, and then under revised procedures. The researcher felt that these flow charts also served as valuable models that showed the step by step procedures involved in the production process. Moreover, it was the researcher's hope that readers using them would be able to quickly visualize each step in the particular process and, for a specified amount of materials, the length of time required to produce them.

With the flow charts complete, the researcher assigned a flat hourly rate of ten dollars per hour as a token cost for production of materials. Timed results from the flow charts, after being assigned the $10.00 per hour production rate, allowed for the determination of total cost for the production of processing materials for books and audio visuals under the old and revised procedures. These results are presented in Table 11 -- Overall Time-Cost Study Results. An interpretation of results in table eleven show that BiblioFile production times and costs are individually, and combined, slightly over one third of the required times and costs associated with the manual production methods. It was seen that 250 books and 250 audio visuals took 60.3708 hours and cost $603.71 to produce under the old manual procedures while the same amount of material under the revised or automated procedures took only 21.7586 hours at a cost of $217.56.

With the time-cost analysis completed for a specified amount of materials, the researcher's next most logical question was, how much money, based on FY87 production data, will the BiblioFile system and revised procedures save the School Board of Palm Beach County during FY88? These projections are presented in Table 13 -- Weekly, Monthly, and Yearly Projections Under Revised Procedures. For a conservative analysis, the same level of production for FY87 was assumed for the FY88 projections. Item production data from the time-cost study has been projected to determine times and costs for the production of media materials for each week, month and the entire 1988 fiscal year under both the old and revised procedures. These are represented in Figures 12 and 13.

By interpreting these results found in Table 12 and 13, one can see that, as a result of BiblioFile system implementation and revised procedures, the School Board of Palm Beach County is projected to save $616.34 each week, $2,426.93 each month, and a total of $29,115.63 during FY88. It was noted that a conservative 2911.5628 man hours will be saved during FY88 as a result of system implementation. Corresponding levels of time savings was also noted for the weekly and monthly projections. Conclusions based on all the results noted thus far will be provided in the following section.

CONCLUSIONS:

Any study, no matter how scholarly, that does not assess the attitudes of the end user, cannot truly propose to evaluate results in a comprehensive and objective manner. Because of this, the attitudinal survey was an important part of the evaluative phase of this study. Based on the positive results of the attitudinal survey, the researcher must conclude that district media specialists perceive system produced processing materials to be at a high level of quality, of an accepted format and well suited to end user needs. The researcher concludes that from this standpoint, the project was highly successful.

From an administrative standpoint, as a result of the time-cost study, the researcher concludes that the project was even more successful. Before the initiation of the study, as noted in Figure 3: Cataloging and Processing of Books Under the Old Set of Procedures, books were shipped to schools and media specialists might have to wait as much as 18 weeks to receive the catalog cards. During this period, as far as the student was concerned, the books might just as well have not been in the collection because they were not referenced in the card catalog that is consulted at the onset of any serious research. Until the cards were received, the only way a student could find these recent, and naturally most preferred titles, was by accidently locating them on the shelves. This was a serious drawback of the old procedures. Many media specialists, realizing this typed and filed their own temporary catalog cards.

As a result of the study, all cataloging materials were shipped to schools with the book, ready for immediate shelving and indexing in the card catalog. The researcher must conclude that revised procedures resulting from system implementation also have had a favorable district-wide influence on students, in terms of being able to locate newer materials. Media specialists, as a result of the study, no longer have to type temporary cards, file them in the card catalog only to replace them when the permanent cards arrived weeks, or months later. The researcher believes that this time savings has allowed district-wide school based media personnel to concentrate less on clerical tasks and more on instruction keyed to direct student access.

In the case of audio visual materials, system implementation made possible an expansion of services. Before the study, because of personnel and time constraints, only certain pieces of audio visual material were processed at all. Processed audio visuals included: those received with cataloging kits, those purchased with ECIA Chapter II funding, or those destined to school centers without a media clerk. All other audio visual material were sent to school centers in an unprocessed state and school based media personnel were responsible for producing the processing materials on their own. The result was that school based personnel, again, had to sacrifice student contact time to perform clerical tasks to reference materials for student access. A drawback was that some media specialists began ordering much of their audio visual materials under ECIA Chapter II funding to receive them processed while ignoring other types of materials or equipment eligible for acquisition under this funding source.

As a direct result of the study, all audio visual materials are now shipped to school centers fully processed and shelf ready. Revised procedures for the cataloging and processing of audio visual materials, made possible by this study, now allow school based personnel more fully to concentrate on student needs, rather than catalog production. This expansion of services in a fast growing school district was made possible without any additional personnel and can only be attributed to system implementation.

Additionally, the time-cost data speak clearly. The system paid for itself, and allowed for the above noted expansion of services, within the first three months of operation. The dollar savings of $29,115.63 per year, although impressive and easily verified, is not the primary benefit of this study. The prime benefit, in the researcher's opinion, was the time savings. Time saved, as a result of improved efficiency, allowed for both an expansion of services and the institution of full shelf ready processing of all materials on shipment. This relieved school based personnel from catalog production tasks, made possible increased student contact time, and provided students with immediate indexed access to the newest materials. On a district-wide scale, these benefits were immeasurable, but certainly, the most important in the final analysis. The researcher concludes, therefore, that system implementation was highly successful from both a school-based and administrative perspective.

When the results were perceived as being successful from the perspective of district media specialists as reflected by the attitudinal survey and, administratively, by the time-cost study, the researcher's focus returned to those initial research questions, posed before system acquisition. It was felt that results from the survey showed the attitudes of the end user and the time-cost study reflected time and cost benefits relative to system implementation, but what about the concerns of the researcher, himself, as noted in the research questions formulated at the onset of the study? The research questions posed in chapter one were divided into three areas: selection, implementation, and evaluation. Since the selection phase of the project was retrospective, answers to the research questions dealing with the acquisition of the BiblioFile system are found in Appendix A -- Selection Phase of the Project. Below, questions are recalled, and answers to them provided, for the implementation and evaluation phases of the project.

IMPLEMENTATION:

1. Personnel. What additional personnel or training for existing personnel will be needed to fully implement the new system?

No additional personnel were acquired to implement the system. Personnel within the work unit were loaned to the acquisitions section to assist in meeting encumbrance deadlines for the ordering of books and audio visuals. Training was provided by the researcher and personnel were, with minor remediation and reinforcement, able to effect system production after three days of training.

2. Attitudinal. Among existing personnel, what is the current attitudinal climate relative to change and, in particular, automation? What can the researcher do to minimize negative effects in this regard?

The researcher found processing staff receptive to change because of increased work load but sceptical that existing cataloging and processing standards would be disregarded as automated procedures were implemented. The inclusion of staff in the revision of procedures, only after proposed revised procedures were found to be beneficial, helped to assure staff that the system was "just another tool" for them to use at their discretion. Rather than mandating change, the decision was left to staff and they took the lead in system implementation. The researcher neither prodded nor delayed their progress.

3. Procedural. What is to be done when materials to be cataloged and processed are not found in the system database? Will the existing procedures be entirely replaced or will they only be modified to include a new subset of procedures relative to the system?

As noted previously in the study, procedures were modified to allow for a subset of procedures to be implemented for reproduction of cards in the master file or original catalog entry using the BiblioFile system. The mail ordering of cards from the Library of Congress was eliminated.

4. Managerial. What upper level administrative support will be given to fund any additional training or other expenses found necessary to fully implement the system?

During all phases of the project, full administrative support was quickly given to fund all needs relative to the implementation of the BiblioFile system.

EVALUATION

1. Design. How will the evaluative instrument and the time-cost study be designed? What aspects of the central cataloging and processing of media materials will be addressed?

The survey instrument was designed by the researcher with the help of selected media specialists and a district measurement expert. The time-cost study was designed by the researcher, but reflected procedures in place for the cataloging and processing functions. All aspects relative to the cataloging and processing of media materials were addressed in both the attitudinal survey and the time-cost study.

2. Reviewers. Who will be queried for response relative to the survey evaluation?

All media specialists served by the researcher's institution were queried relative to the attitudinal survey.

3. Analysis. How will the results of the survey instrument and the time-cost study be interpreted? What future recommendations for improvement will be considered?

Interpretations, based on the results of the attitudinal survey and the time-cost study, are presented earlier in this chapter. It is the researcher's opinion that generally accepted methods of interpretation were used to reach conclusions relative to system implementation. Specific recommendations for improvement of system operations are presented later in this chapter.

4. **Action.** What future action, based on the analysis of all data from the evaluative phase is planned to further enhance system effectiveness?

Future planned enhancements to the system are noted in the recommendations for improvement section, that immediately follows.

With a strong B+ rating from school based personnel on the attitudinal survey, results from the time-cost study that showed system production times and costs to be only slightly higher than one third of the times and costs required under the previous manual methods. Following the more than successful resolution of initial research questions posed at the onset of the study, the researcher concluded that the study was a complete success, far exceeding all initial expectations. A discussion of possible future improvements relative to system production is discussed in the following section.

RECOMMENDATIONS FOR THE IMPROVEMENT OF PRACTICE, INCLUDING STRATEGIES FOR DIFFUSION, IMPLEMENTATION AND CHANGE

The researcher realizes that the project does not end with this written report, but, rather, continues to evolve and grow as needs change. Several recommendations for the future improvement of practice have been identified by the researcher. First, a continuing effort will be made to obtain additional attitudinal and time-cost information about the system in the future. Based on additional information gathered, system configuration will be adjusted to further enhance system output. Because of the time-cost benefits noted with the BiblioFile system, the researcher will consider the possible acquisition of other CD-ROM based applications such as the OCLC Compact Disc Cataloging System. This is expanded upon in Appendix A -- The Selection Phase of the Project. The OCLC system is compatible with existing hardware and would provide access to a far greater amount of bibliographic records in MARC format.

Such an acquisition would significantly cut down on the time now required for the manual retrieval, duplication, typing and refiling of cards from the master file for records not resident in the BiblioFile database. Although an online link to OCLC is planned through the Florida Information Resource Network (FIRN), implementation appears to be a long time away. Finally, whatever is done in the future to enhance cataloging and processing must be considered carefully and be designed to interface with, and communicate through, the total district-wide automation network. As noted earlier, system LC MARC data is in the public domain and can be networked to all school centers without danger of copyright infringement. This means that system data can be accessed by school centers to retrospectively convert their holdings into a machine readable format. How this system will interface with the proposed district network is important to future automated efforts.

There are directions the researcher would like to propose relative to the overall plan. It is the researcher's hope that soon a media specialist can query the system database via the network to assist in converting their card catalogs into a machine readable format and provide students with a state of the art method of identifying and locating media materials. The researcher would also like to see a district union catalog developed that would save data for materials not resident in the system database. In other words, once the processing section or an individual school creates an original record for a material not resident in the BiblioFile database, it would saved in the union catalog and made available to all later users. This would give school based personnel a much higher hit rate in the conversion process and eliminate significant redundancy in data entry.

Specific strategies for implementation and change in this regard are contingent on the outcome of the district-wide automation study and the resulting pilot program. Much is still in the planning stages and, consequently, beyond the immediate focus of this study and the control of the researcher. The researcher has made every effort to insure that appropriate administrative personnel within his institution were aware of, and had an opportunity to review, the findings of this study. The major field project proposal has been forwarded as an FYI to the Director of Instructional Support Services, the Assistant Superintendent of Instruction and the Associate Superintendent for Instruction. The completed major field project final report will also be disseminated in the same way, once it is approved.

Media Personnel within the Palm Beach County School District have been kept aware of ongoing research and findings resulting from the study through a series of articles published in "Informational Short Shots," a monthly news memorandum from the Department of Instructional Support Services distributed to the media specialists and staff of the 103 public school centers served by the researcher's institution. Also on the local level, pertinent information, regarding the system were published in "E.M.A. Speaks", the monthly newsletter of the Palm Beach County Educational Media Association. Recipients of "E.M.A. Speaks" included public school media personnel, private school media personnel and other interested subscribing parties. Additionally, the researcher provided two informational workshops, as a part of the regular inservice program, to district media personnel relative to CD-ROM technology and the BiblioFile system in particular.

At the state level, the researcher made a presentation during the preschool meeting of the Florida Conference of School Media Supervisors sponsored by the Florida Department of Education in Tallahassee on September 17, 1987. This presentation gave state-wide exposure of the system and this study to the media coordinators in each of Florida's 67 counties. Once the final report is approved, the researcher intends to submit for publication, a short article summarizing the findings of the study in "Florida Media Quarterly", a journal for media professionals published by the Florida Association for Media in Education. Additionally, the researcher has been cleared to present an hour long seminar titled "CD-ROM Based Media Applications", focusing on the BiblioFile system at the Florida Instructional Computing Conference in Orlando, Florida on January 27, 1988. Presentations noted above include a discussion of the study, a live or audio visual simulated presentation illustrating the use and adaptations of the BiblioFile system and printed follow-up materials.

At the national level, the researcher hopes to publish study findings in a major national-level professional journal. The researcher has been in contact with an associate editor of the "International Journal of Educational Media" and has received favorable feedback relative to publication of a lead article that will summarize the study and its findings.

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APPENDIX A: THE SELECTION PHASE OF THE PROJECT

Based on the information gathering process, including an ongoing literature review, consultation with other Florida school districts and vendor demonstrations and/or literature, a host of systems were identified that were capable of alleviating the institutional problem. Because of the abundance of information available, the researcher had to set up some form of selection criteria to measure the relative advantages and disadvantages of each system as it would apply to his specific institutional setting. Consequently, the following set of selection criteria was developed.

1. **Cost.** What hardware, software and human resources are required to support the system?

2. **Effectiveness.** How well will it accomplish the purpose for which it is acquired?

3. **Authority Control.** Is the data available both accurate and consistent? Does it conform to AACR II and the ISBD format?

4. Personnel Considerations. What additional personnel or training for existing personnel will be needed to implement the new system? How much "down time" will there be while the system is being implemented?

5. Contractual Considerations. What fees does the vendor expect the School Board of Palm Beach County to pay beyond the initial cost of the system?

6. Copyright Considerations. Is the data in the public domain, or is it owned by the vendor?

Based on the above criteria, the researcher preliminarily evaluated several systems for acquisition. It was felt that the number of systems to be considered for indepth analysis had to be reduced to a manageable number. Listed below are the systems that were eliminated from consideration during the preliminary selection phase, as well as, the major reason(s) for the elimination.

1. Mini-Marc (Floppy System).

The most favorable aspect of this system was that the database was in full MARC format and better yet available on-site, thus eliminating any online charges. The entire Mini-Marc database of over one million Library of Congress MARC format records was stored on 400-500 eight inch floppy diskettes. Although the diskettes were color coded for ease of access, it was determined that the process of searching for a record through the ROM index, locating and inserting the proper diskette, bringing up and changing the record to individual school specifications, and writing the modified record to a second diskette for storage and printing later, was cumbersome and ineffective. The researcher found that almost one and a half times the processing staff would be required to support the Mini-Marc system as was employed in Palm Beach to manually catalog and process materials. In the researcher's opinion, more work could be done manually with far fewer people and less expense. The system was therefore eliminated from consideration. However, Mini-Marc had announced planned changes that would convert their database from the floppy format to twelve inch videodisc format. This system as modified would be reconsidered later.

2. Research Libraries Information Network (RLIN).

The most favorable aspect of this utility was the online access to over 17 million USMARC records in seven format sub-databases (books, serials, scores, sound recordings, films, maps and archives and manuscripts). The search capability was found to be excellent, in that, in addition to standard search parameters, it allowed for subject, phrase and boolean searching of records. Also found to be favorable was the hardware costs involved. Unfortunately, on further investigation, the system was found unsuitable for this institutional setting. The first factor was cost -- $63.00 per connect hour for search only and $80.00 per connect hour for downloading capability and an additional $15.00 Tymnet charge per connect hour was too expensive just to obtain a record. Again, once the record was retrieved, as with the Mini-Marc system, in this institutional setting, it had to be modified to correspond with individual school specifications. Follow-up consideration was given to entering into a search-only contract with CLASS to build a central union catalog. Section one of their contract, however, stipulated that the record could only be printed on paper and not stored in machine readable form. This was totally unacceptable because each time the same record was needed, it had to be retrieved again. Even after being changed, the record was considered property of CLASS and could not be shared with school centers without incurring another fee. It was, in the researcher's opinion, simply faster, cheaper and more effective not to use the system.

3. UTLAS.

The main advantages of this system included access to a database of 24 million records in MARC format. Unlike RLIN, copies of records could be stored on tape or other magnetic media. Also, this utility had the available option for building a central shared union catalog database from modified records through their Catalogue Support System (CATSS) which might be later shared by participating individual libraries via their InfoQuest OPAC, pc-based software. The UTLAS Authority Control Service was found to be superior to all others in that authority records were updated weekly and subscribers were routinely notified of changes in the LC name and subject files. There were many services and options available under the UTLAS "umbrella," but, unfortunately, many of them were geared toward individual libraries with collections not exceeding 25,000 volumes. Although more philosophically in line with what was needed at the district level in terms of a central union catalog, cost was the major drawback. Online charges similar to RLIN for obtaining records were still too high. The records still had to be modified according to individual school center specifications before materials could be centrally processed. Although the union catalog could be developed through the Catalogue Support System, this required either mailing or transmitting modified records to Arlington, Virginia, and waiting for the results to return in magnetic tape format. The card and label printing options and hardware considerations for the CATSS portion of the UTLAS system was too expensive.

4. Mitinet.

This company boasted two software packages, Mitinet/MARC and Mitinet/Retro, that would assist in transforming library cataloging information into machine readable format. The major selling point for these software packages was their selection by the Marc Task Force of the Minnesota School Districts Data Processing Joint

Board/Technology and Information Services (TIES) to develop a CD-ROM based union catalog for their participating schools. Unfortunately, on reviewing the task force's recommendations, it was determined what they really suggested was that school centers could use Mitinet, BiblioFile, or Vendor Keying, whichever was most cost effective for them to convert their records. Under the Mitinet option, schools must first rearrange their shelf list card catalogs in alphabetical order a drawer at a time. Next, they must search against the LC MARC FICHE and, if a "hit" was found, record the LC number and a check digit on the shelf list card. Next, using the Mitinet/Retro software, users must enter the LC number and check digit on disk that is then sent to Brodart who will match sent records against their MARC database. The task force suggests that libraries average 40 to 60 record conversions per hour at a cost figure of $.40 per title using this process. The total Mitinet cost of conversion is estimated at $3,150.00 for 10,000 titles and $5,270.00 for 20,000 titles. However, if a LC "hit" is not found, which Mitinet estimates only 20 percent, then the library must enter the full MARC record using the Mitinet/Marc software. Based on analysis of local data, the researcher disagrees with the estimated conversion time of 40-60 records per hour and finds the rearranging of the shelf list in alphabetical order cumbersome. Also, rearranging the shelf list as it was before the conversion was never mentioned or figured in the cost analysis. Finally, the researcher finds that more like 25-30 percent of the books ordered in his district have not been cataloged by the Library of Congress. Moreover, in the researcher's opinion, the Mitinet solution at the district level is cumbersome at best, and far more expensive than the cost of the software will reflect.

As a result of the preliminary evaluations, only three systems remained to be considered for acquisition, Mini-Marc (Videodisc version), OCLC and BiblioFile.

Mini-Marc (Videodisc version).

The new Mini-Marc system was much the same as the floppy system except that, instead of having the LC MARC database stored on 400-500 eight inch floppy diskettes, it was now stored on two twelve inch videodiscs running in Pioneer LDV-1000 players. Also, the old system had three disk drives: one for the operating system and software, one for the disk being read, and one for the storage of retrieved and modified records. The new system had the operating system and software installed on a hard drive. Only one disk drive was available for ancillary storage of modified records or for rebooting the hard drive if the system were to crash. Only one school district in Florida had the system and they were happy to explain it to the researcher. The most favorable aspect of the system was the less than one second response time from query to display of any given record and that the entire LC MARC database was always available without any switching of disks, etc. Hardware costs were higher than either OCLC or BiblioFile, but not excessive. There are, however, more serious drawbacks with the Mini-Marc system as revised. Unfortunately, because of the more rapid and widespread development of CD-ROM technology in the information field, there had been developed a international standard for compact disks and players, but not for videodiscs and videodisc players. Also, and again because of the widespread use of CD-ROM, data from magnetic media could be transferred to a compact disk at a cost of only 3-1/2 to 4 cents per MARC record. The cost to transfer data to and produce a custom videodisc is totally prohibitive. Because of this, it was decided to remove the Mini-Marc system from future consideration.

OCLC.

Over the years, the researcher had experienced several demonstrations of the OCLC system, but, as a part of this study, found it was necessary to re-view it from strictly an institutional perspective. The Local System/2000 Minicomputer option was reviewed briefly. It was quickly found to be far beyond the affordability range permitted by the institution. The only real possible option was online access to OCLC via Solinet using the M300 workstation. In that regard, several Florida school districts were currently using the system in that configuration and were happy to show and/or talk about its advantages and disadvantages. At the Florida Department of Education's Conference of Media Supervisors in September of 1986, Mr. Hugh Durbin, Director of Library Programs for the Columbus City Schools and member of the OCLC Board of Directors, addressed concerns of district media supervisors using the system, answered questions from those contemplating its use, and provided information on new services and products planned for the future. Major concerns of existing users centered around slow response time from the host during peak periods, high online charges through Solinet and the record changes needed later for public school systems once records were retrieved. Mr. Durbin announced that OCLC was in the process of developing the OCLC Compact Disc Cataloging System similar to the BiblioFile system. With the impending development of the new CD-ROM system and problems noted by then current users, it was decided to remove from consideration online access to OCLC via Solinet. It must be noted that further research showed that the OCLC and BiblioFile system would both be able to operate using the same hardware and internationally standard discs and players. It was noted that the OCLC CDCS could be added to an existing BiblioFile system with a minimum effort when it became available.

BiblioFile.

The researcher obtained a free demonstration diskette from the vendor and was impressed with the system capabilities. Because all the systems previously considered were planning movement into the CD-ROM arena and that international standards had already been developed, it was felt that a CD-ROM based system would be a good move in terms of future developments in the information field. The BiblioFile system provided the least expensive yet most advanced solution to the researcher's institutional problems based on all selection criteria identified earlier. Below follows an item by item analysis of the BiblioFile system according to the selection criteria.

COST

Cost of the system was unbelievably low and when the company threw in the hardware for free, through a limited offer, a decision was quickly made and a purchase order issued. For $4,410.00 the researcher was able to receive a three year subscription to the LC MARC database (over 3 million records on four compact disks), a three year subscription to the ANY BOOK database, 1 free PC-XT compatible computer, 1 free International Standard CD-ROM drive, and free DOS operating system and BiblioFile software. The only thing left to purchase was a $300.00 IBM Proprinter, card and label stock and a few blank diskettes.

EFFECTIVENESS

The system had the capability to be configured to produce catalog cards and labels in virtually any known format. The system production capabilities in either singular or batch mode were at least as good as any of the other systems reviewed.

AUTHORITY CONTROL

All records available were in full MARC format in every respect.

PERSONNEL CONSIDERATIONS

The researcher was convinced that existing personnel could be trained over a period of two or three days to operate the system and that no additional personnel would be required to support it.

CONTRACTUAL CONSIDERATIONS

Once the system was purchased no additional fees or obligations would be required of the School Board of Palm Beach County.

COPYRIGHT CONSIDERATIONS

Since all system data was original, unaltered Library of Congress MARC format data, it is in the public domain and could be altered, saved and later distributed to any amount of third parties in any format.

FINAL NOTES

The only drawback to the system the researcher was able to note was that disc number 4 contained the search indices and that, if a record was found to reside on a different compact disc, a disc queue had to be either registered to the floppy disc or the compact disc switched to bring the record up. This would be no problem when doing a batch of materials because the operator could record the discs queues and then work through the resident records on disc 4, 3, 2 and, finally, 1. The only time this would be inconvenient is if the operator needs only one or two records. The switching of compact discs certainly takes less time than logging on to an online environment and, given the cost, is well worth it. Finally, the Library Corporation announced that several enhancements will soon be made available that will allow several drives to operate in tandem to eliminate this problem. Also, modified LC MARC records or original MARC records created can be saved to floppy disc and written to a union catalog compact disc for 3-1/2 cents per record. All the above advantages pointed the researcher toward the acquisition of the BiblioFile system.

APPENDIX B -- REVISED PROCEDURES

The following set of cataloging and processing procedures for materials requiring full processing has been revised from those in effect before initiating the study. These procedures are presented below, in their entirety, to provide interested readers with complete background information relative to the researcher's institution and to illustrate the procedural base that was modified as a result of the study. Operations 3, 4, and 5 were impacted most by the study, and most readers will wish to review these alone. The other operations are included for those readers wishing to examine the full range of activities involved in the cataloging and processing functions in the researcher's institution.

CATALOGING AND PROCESSING PROCEDURES FOR BOOKS REQUIRING FULL PROCESSING BY INSTRUCTIONAL SUPPORT SERVICES

OPERATION 1 -- BOOKS RELEASED BY ACQUISITIONS TO PROCESSING

1. Boxes of books are stacked in the bay area for Processing to receive.

2. Boxes are brought to Processing and stacked on the counter top separating the Processing Section and the Film Library.

   a. Boxes are stacked according to whether items were purchased with school budget or federal funds. (1) Black identification markings represent materials purchased from school budget or state allocated funds. (2) Red identification markings represent materials purchased from federal funds.

   b. Boxes are separated by schools.

   c. Attention is also given to receipt dates marked on boxes, so that the oldest materials are processed first.

OPERATION 2 -- FILLING BOOK TRUCKS

(Note: Processing has 12 large book trucks, each truck holding about 200-250 books.)

1. Boxes are opened by oldest date.

2. A school specification card is filled out and taped to the truck. Specification cards with school names and numbers are arranged alphabetically by school and maintained on the stamping table.

3. Books are removed on a school-by-school basis and placed on the stamping desk.

4. School stamps are arranged numerically and kept in several stamp racks that are bolted to the stamping table. The name of the school is stamped on each book.

   a. If a book is thick enough, the school name is stamped on top edge of the pages.

   b. Thin books are stamped on the lower middle section of the title page.

   c. If a thin book has pictures or information that would be obscured by the stamp, or if the bottom of the title page is too dark to allow a stamped school name to be read, the school name is stamped on the opposite page.

5. Federal fund stamps (ECIA) are placed on the lower middle section of the title page, or in accord with 4c above if information would be obscured by stamping on the title page.

6. Books are arranged on the truck under a completed specification card.

7. Dividers are placed between books to be processed for different schools.

(Note: Acquisitions leaves 3 copies of the multicopy order forms in the title page of each book (white, yellow, blue). They are important to the processing procedure, as will be explained as each step is covered.)

OPERATION 3 -- CATALOGING AND PROCESSING BOOKS FOUND IN THE MARC DATABASE

1. Stamped books on a truck are first searched for in the MARC database resident in the BiblioFile system.

   a. With the system booted up and in the catalog production mode, a search is started by pressing the F1 key.

   b. At the search prompt, the clerk enters any one of the following: the ISBN number, the LC number, the title (or as much of it that there is room for) or the author (followed by a backslash). Then the operator hits the enter key.

(Note: The system will automatically distinguish an author from a title because of the presence of a backslash. In the same way, the system will distinguish an ISBN from an LC number by the location of the first dash. In the search mode, punctuation, except dashes, and upper case letters are ignored.)

2. After the search is entered, the system will either find no records, one record, or several records.

   a. If no record is found, the book is set aside on the truck and will be searched for in the master file. This is covered in operation 4.

b. If the system locates several records such as a title having several editions, a hit screen will appear. One then enters the hit number of the edition being sought, followed by hitting the enter key. The desired MARC record will now appear on the screen.

c. If the system finds only one record, it will automatically display the record screen.

3. Once the desired MARC record is located, it may be edited according to individual school center specifications by pressing the F3 key.

a. The blinking cursor will be located in the 082 or "Dewey Class" field. Depending on the school, it may be necessary to truncate the Dewey classification. Usually, the Dewey call is truncated at the first prime mark or at five numbers after the decimal, whichever occurs first.

b. The individual school center designation for fictional, biographical, professional, and reference works needs to precede the call number. It is entered in the 082 field by adding it before the call number and separating it from the call number by a space.

c. For most schools, classified works also need to show the first three letters of the authors last name (first letter capitalized). This is also entered in the 082 field, after the call number, and separated from the call number by a space.

(Note: the system will allow four classification lines. One for the designation (up to three characters), one for the Dewey call (second line broken at the decimal and third line truncated at the first prime or five numbers after the decimal), and fourth line (up to three characters) for the author's last name. It is important to remember that this information must be entered in the 082 field and that the designation, Dewey class, and author name be separated by a space. The use of the insert and delete keys will be explained and will assist in the rapid editing of the 082 field).

4. Once the record is edited according to individual school specifications, cards can be previewed for accuracy by hitting the F4 key. The first catalog card (main entry card) will appear. The remaining cards in the set can be viewed by hitting the space bar to go from one card to the next.

a. If there is an error in the cards, the operator presses F3, re-edit, and presses F4 to preview again. This process is repeated until the card set is correct.

(Note: Some school center specifications, particularly elementary schools, will request that only a maximum of three tracings or subject cards be printed, so as not to confuse younger children. additional subject cards can be removed from the set by moving the cursor to the fourth and following subject field number, and pressing the delete key twice).

5. Once the card set is edited and checked, the catalog cards can be printed.

   a. The printer switch must be set to "A" for the letter quality printer and the permanently loaded card stock lined up on the mark. The F6 is then pressed to print the cards.

6. Once the card set is printed, the book card and pocket also can be printed.

   a. The printer switch is set to "B" for the dot matrix printer. The card in the pocket, shifted all the way to the left, and run into the printer to the mark. The F8 key is pressed to print the book card and pocket, after which the card and pocket are backed out of the printer.

7. The catalog cards are folded and inserted into the book pocket along with the book card. The loaded book pocket is inserted in the book so that it will be visible when put back on the truck and not confused with unprocessed materials.

OPERATION 4 -- CATALOGING AND PROCESSING BOOKS FOUND IN THE MASTER FILE

1. Stamped books on a truck are first searched for in the MARC database resident in the BiblioFile system. If they are not located there, they are searched for in the master file.

   a. The Regular Master File is maintained by title entry.

   b. If the Regular Master File contains a catalog card for a given book, the card is pulled and a flag inserted in the file.

   c. If the master catalog card is not in the file, the book is set aside on the truck for full processing as described in Operation 5.

   d. The master card is duplicated to produce a complete set of cards for each book, including: (1) Shelf list card, (2) Author card, (3) Title card, (4) Tracing (i.e., subject) cards, and (5) Added entry cards

2. The procedure for duplicating catalog cards is as follows:

   a. Regular Master File cards are placed in a card holder called a template (each template holds 6 cards). Cards from the Regular Master File will be duplicated 6 or 7 times, depending n the number of subject cards needed.

   b. After card sets are photocopied, the masters are removed from the template to be refiled. Sets of cards are placed in corresponding books with part of the cards exposed.

3. Once the main entry card set is duplicated, the title and subject headings are typed (all caps) on the appropriate cards. See Operation 5 for complete details about card content and format.

4. A book card and pocket are typed according to the specifications found in Operation 5.

5. The catalog cards are placed in the book pocket, along with the book card. The loaded book pocket is inserted in the book so that it is visible when put back on the truck and not confused with unprocessed materials.

OPERATION 5 -- ORIGINAL CATALOGING AND PROCESSING FOR BOOKS NOT FOUND IN THE MARC DATABASE OR THE MASTER FILE

Procedures for classification and contents of cards may be found in, and are expected to, conform with AACR II.

1. Processing specification cards are maintained for each school served by the Department of Instructional Support Services. The specification card of a given school is read so that the correct classification can be used in context with any variations that have been requested by the resident media specialist.

2. Standard classifications used by ISS are:

R - Reference
F - Fiction (novels and story collections)
92 - Single biography
PRO - Professional books

3. Special classifications requested by media specialists may include any of the following:

REF: Reference
SC - Story collection
B - Single biography
921 - Single biography

4. Media specialists may request special variations in classification that will be followed within limits. The Section Head notes these variations on a scrap card and tapes it near the specification card that is attached to a book cart housing the books for the particular school.

Special variations will be taken into account when the classification is put on the white copy of the multicopy order form. Use of this form will be explained further in this section.

5. Both a good working knowledge of the Dewey Decimal Classification System and the standard procedures used by ISS are important in classification. For example, the Library of Congress uses the literature classification number for all books in that area, regardless of whether the work is fiction, criticism or interpretation. It is important to know the difference. ISS classifies fiction as an "F." Interpretation and criticism are usually 813.9. A knowledge of the types of materials that should be included in the reference section is also important since the Library of Congress does not distinguish reference items.

6. The classification to be used, as noted above, is written on the classification line of the white copy of the multicopy order form. The white slip is placed on the title page with the catalog card set about 2/3 above the top of the book.

7. Dewey Decimal classification numbers are obtained in one of four ways:

   a. Classification numbers are found in the MARC database from titles of an obvious similar nature;

b. Classification numbers are found in the master file from titles of an obvious similar nature;

c. Classification numbers are found in the National Union Catalog (NUC) or the Book Publishing Record (BPR) shelved on the south wall in the Processing Section; or

d. Books not found in the MARC database, the master file, NUC, BPR, or that may be in doubt, will be assigned a classification number by the Media Processing Specialist.

8. Special decisions regarding classification are logged by the Section Head and will be brought to the attention of the Media Specialist for Processing.

9. Once the classification is determined, the physical data entry for catalog cards, book cards, and pockets may proceed. Procedures for data entry and production of these materials will involve the BiblioFile system in the "F5 or input original" mode, or, if both work stations are busy, the manual typing of materials. In either event, materials produced are to be in accord with guidelines outlined in AACR II.

a. For BiblioFile original catalog production, the F5 key is pressed to enter the input mode. A specially tailored blank MARC record will appear on the screen. Data is entered in the appropriate field, followed with a carriage return. This will move the cursor to the next field. When all data is entered, the F4 key is pressed to view the card. If a correction is needed, the operator would press F3, make the correction, and hit F4 to recheck the cards again. The process is repeated until the cards are correct. Steps 5-7 in Operation 3 are then followed to print the cards, books card and pocket.

(Note: a sample original MARC record and the resulting card set are maintained at both work stations to assist the operator in determining what data, and in what format data should be entered in each field. It should be remembered that additional fields can be added or deleted by pressing either the "+" or "-" key twice. Any questions should be referred to the Section Head.)

b. The manual typing of catalog card sets, book cards, and pockets should be done in accord with the above standards. Complete information and sample materials are available on request to assist the typist.

10. Regardless of the method of original data entry (BiblioFile or manual typing), several important points need to be remembered.

a. Once the catalog cards are typed, the typist checks the specification card to determine what book card will be used. The book cards are of three types: regular (standard) book card; Gaylord card, manufactured by the

Gaylord Company for use with a circulation stamping machine used by various schools; and Deep-cut Gaylord card.

b. The specification card will denote if Gaylord cards should be used. When no card indication is given, regular cards are to be used.

11. The various catalog cards on which classifications and headings are to be typed are as follows:

a. Shelf list card, which includes classification and cost gained from white multicopy slip, and current year.

b. Main entry or author card, which requires classification only.

c. Title card, typed exactly as on the main entry card.

d. Subject headings, typed all in caps. When alternative subject headings are listed in brackets, they are to be used. When there are more than three subject headings, only the first three are typed. The Professional Library in ISS is the only exception -- all subject headings are typed.

e. Added entry cards are typed only for alternate titles. Added entry cards are not typed for joint authors, illustrators, series (e.g., Time/Life Books), etc.

f. Books purchased with federal funds should have the appropriate acronym typed on the shelf list card (ECIA). This is discussed further in Operation 8.

g. Shelf list cards for individual biographies include the first tracing typed in caps. This is done to provide the media specialist with a completed inventory card, as all biography books are shelved alphabetically. If a title will not fit on the first line, it is completed following an indention on the second line. If the title still cannot be completed, truncation is denoted with three dots.

12. The book card is placed in the book pocket, and both are typed or printed together at the same time.

a. Author entries are typed with last name first. Since the title on the catalog card will have only the first word and proper nouns capitalized, all words typed on the book card and book pocket will be capitalized with the exceptions of prepositions and conjunctions.

b. It should be noted that the above classifications for all works of individual biography are typed with the first 3 letters of the biographe's last name, in accord with information recorded on the white multicopy slip.

c. The authority for typing the author's name is the title page, not the catalog card, e.g.:

Title Page:

Allen Carpenter
Eve Bunting
H. A. Rey

Catalog Card:

John Allen Carpenter
Anne Eve Bunting
Hans Augusto Rey

d. If an author is better known by his first and middle name and might not be recognized by the first name alone, the full name is used (e.g., Stevenson, Robert Louis; Poe, Edgar Allen; Alcott, Louisa May).

e. If the author is known only by initials, the initials are used (e.g., Lewis, C.S.).

f. Pseudonyms are used instead of legal names (e.g., Twain, Mark, instead of Clemens, Samuel Longhorn).

g. If a main entry (author or corporation) or title is too long to fit in the allotted space, as much as possible is typed, ending with three periods.

h. Books requiring Gaylord cards are typed the same way as regular cards.

i. If a book is too small to accommodate the card and pocket, the top part of the pocket is cut off and the call number, author and title are typed on the bottom half of the pocket. If the card and pocket are still too large for the book, they will be sent loose inside the back cover.

OPERATION 6 -- SPINING BOOKS WITHOUT DUST JACKETS

1. The Sealon Labeling System from Brodart is used (with 1" x 1-1/2" labels).

2. A typewriter with an orator element is used to type labels, as it produces a large type and can be readily identified.

3. Call numbers of any length are "broken" at the decimal point and typed on a second line.

4. All books are spined (i.e., labeled) except for encyclopedias with the classification 031 or 032.

5. Labels are placed on the spine two inches from the bottom of the book. The only exception is that instance wherein a label might cover pertinent information. The Media Processing Specialist will make the decision or the Section Head will if the former is absent.

OPERATION 7 -- SPINING AND COVERING BOOKS WITH JACKETS

1. All jacketed books receive Mylar covers, whereas non-jacketed books receive Sealon labels only. Jacketed books receive pressure sensitive labels positioned on the spine area of the book jacket, before being covered.

2. Two sizes of pressure sensitive labels are used.

   a. The 1-1/2" x 3//4" label is used for a two line entry or a long classification that needs to be broken because of the narrowness of the book spine.

   b. The 1-1/2" x 1" label is used for the three line entries as in Reference or Professional books, etc.

   c. Labels come in sheets of twenty. The call numbers are typed with the orator element so that the type size and style on the labels is the same as those on non-jacketed books.

3. Spine labels are placed on the jacket two inches from the bottom of the book.

4. A covering board is used to complete the application of the Mylar book covers. A subset of procedures for this operation is available on request.

OPERATION 8 -- INSPECTION

1. This operation has a two fold purpose: (a) to inspect the preceding processing for various errors, and (b) record keeping. Also, this operation completes the last processing procedure of gluing ve three extra steps outlined below, with records noted in red.)

2. The completed truck is rolled to the inspection table.

3. Books for each school are removed and set on the left side of the table.

4. A 3" x 5" scrap card is partially prepared with:

   a. School name.

   b. School number.

   c. Which fund (school budget, state, or federal).

   d. Date.

   e. Amount of books (to be filled in after work is completed).

5. Also, the record pad (a letter or legal size yellow pad) has recorded the:

   a. Date.

   b. Name of inspector.

   c. Which fund.

d. School name.

e. Total books for each school.

f. Total amount of books for entire truck.

g. Beginning and ending federal numbers (steps, e., f., and g. are completed after books are inspected and counted). These are included on the lower right corner of the card noted in 4 above. Red ink is used for federal fund sources.

6. The first extra step for books purchased with federal funds is the recording of the numbers assigned for each book. Records are kept on a legal size yellow pad that is always located on the inspection table along with the record pad for total books.

(Note: Each school year a different set of numbers is assigned, with the first two numbers reflecting the fiscal year, e.g., FY 87=870001, FY 88=880001.)

7. General inspection procedures include:

a. Remove the white copy of the multicopy order form located in the title page and place it on top of the completed scrap card.

b. Inspect the shelf list card for the correct price of book (recorded on the white slip).

c. Check individual biography books to ascertain that the shelf list card is headed exactly like the first tracing.

d. Inspect all catalog cards for typographical errors, tracing omissions, or incorrect tracings.

e. Inspect the card and pocket.

f. Inspect the label attached to the book spine.

g. Give errors found in processing to the Processing Section Head for correction, or promptly correct the mistake.

8. A second step for books purchased with federal funds now takes place.

a. A numbering machine located on the inspection table is used for additional stamping. It is pre-set for five consecutive impressions of the same number.

b. The following are stamped: (1) The white slip (for Processing Section records). (2) The title page of the book (if possible, on the same line as the ESEA IV-B or ECIA stamp that has already been applied). (3) The shelf list card (on the same line as the typed "ECIA"). (4) The upper right hand corner of the pocket. (5) The upper right hand corner of the book card.

c. If a set of books (encyclopedias, cook books, etc.); (1) The white slip, shelf list card, and first volume are stamped with the same number, and the two additional impressions are made on a scrap card. (2) The machine is now set for consecutive numbering. (3) Each volume is stamped on the title page. (4) When the last book of the set is to be stamped, the machine is re-set to quintuplicate, the title page is stamped, the white slip and the shelf list card stamped again. (5) The last two impressions of the same number are hit off on a scrap card.

9. The card and pocket and catalog cards are put in the back of the book. The books are stacked, face down, on the front part of the inspection table for the gluing of the pockets.

10. For schools requiring the Check Point security tags, the following is to be done:

a. Peel off backing.

b. Place tag in the area where the pocket will be, adhesive side down. (pocket is now ready to apply over the tag.)

c. If the pocket is already glued, insert the tag deep in the pocket.

11. Complete instructions for preparing and operating the glue machine are available on request.

12. Each book is brought directly in front of the inspector. The catalog cards are put aside and only the card and pocket are run through the glue machine (a thin layer of glue is applied to the entire backside of the pocket).

13. For books without book jackets, the pocket is placed on the inside back cover and a date due slip on the opposite page (unless Gaylord cards are used).

14. For books with jackets, the card and pocket are secured on the page opposite the back cover, and the date due slip is secured on the bottom flap of the pocket. (Sometimes, trimming is required so that the date due slip will fit within the book.)

15. The books are placed back on the truck under the correct specification card.

16. The books are counted; the white slips are counted; and the counts must match.

17. The count is recorded on the record pad, the specification card, and on the information card (this card is placed on the top of the white slips and secured with a rubber band or paper clip).

18. The third step for books purchased with federal funds is now completed. The beginning and ending number is recorded on the information scrap card. This is done to make it easier to find a particular book if there is a problem.

19. When all schools are completed, the white slips are bound together, the total count is recorded on a scrap card, and these are placed on the Section Head's desk.

20. For schools requiring the 3M Tattle Tape Detection strips, the following steps are then taken: (Adequate ventilation must be ensured when installing strips.)

a. Installing strips in the spine of the book: (1) The liner is removed from strip and placed 1/8 inch of one end of strip on the square end of the "bayonet". (2) The book is opened so that the cover separates from the binding along the spine. (3) The bayonet is pushed between the book cover and the binding. The bayonet is pulled on through with the strip (adhesive side toward the book cover) and stopping when the strip disappears. (4) The book is closed and pressed along the exterior of the spine to secure the strip. (5) The bayonet is pulled out.

b. Installing strips in the gutter of the book: (1) The book is opened to a page with a margin wide enough so that the tape will not interfere with text. Do not open book too wide or the book will open at this page naturally after installation. (2) The short liner from the strip is removed. (3) The strip is placed into the gutter as deeply as possible and pressed into place. (5) The long liner from the strip is pulled and the book closed. The strip is now permanently located in the book.

21. The truck is now ready for packing.

OPERATION 9 -- PACKING BOOKS

1. General considerations:

a. There are five designated areas that ISS serves in the school system: North-South, South-South, Central, North, and West (Glades). Boxes of books and audio-visual materials are to be placed on the shipping dock in the appropriate area as marked on the wall. The dock, itself, is divided by lines for the given areas. Materials are picked up periodically from the dock and delivered to the schools.

b. There is an alphabetical list of the schools by area, tacked on the right side of the packing table.

c. Processing keeps a record, by date, of each school and the number of boxes and total of books sent. The record is kept on a yellow 5" x 7" pad. Entries for school budget or any funds other than federal funds are recorded in black. Federal funds are recorded in red.

d. Two part carbonless book delivery slips are used by ISS. After being completed, the original and the yellow copy, after being checked for accuracy, are taken, along with the boxes of material, to each school and are signed and dated by the media specialist. The delivery workers return these signed slips for our records, insuring that a delivery was made and that materials were received. Blank slips are kept in a small box on the packing table, filed by areas, then alphabetically by school.

e. It is extremely important that no errors be made in this operation. A step by step procedure is kept on the packing table for the packer's reference.

2. The procedures for packing books are as follows:

a. The truck of books is brought to the packing area along with a pad to list the schools, and black or red broad tip marker (depending on the funds used to buy the books or audiovisual materials), and a black or red ball point pen). Black signifies school budget or state funds. Red signifies federal funds.

b. The instruction card is removed from the book truck for the school to be packed and placed on the table near the clerk (to help in remembering the name of the school being packed).

c. Books are packed separately for each school. Empty boxes are located in the southeast corner of the warehouse. Boxes are taped securely with three inch masking tape. The school name is printed across the masking tape, including the level of the school, e.g.: LAKE WORTH HIGH, LANTANA ELEM., BOCA RATON MIDDLE, etc.

d. The boxes are counted. The following information is recorded on the top of the box with a broad marker: (1) Upper left - Amount of boxes (1 of 1, 2 of 3, etc.). Also, recorded is the total amount of books on last box. (2) Upper right - type of material, and school year. (3) Lower left - Initial of the area in which school is located: N, C, N-S, S-S, or G. (4) Lower right - Date and initials of the packer. Any other markings on the box are crossed out so that only what is recorded will show.

e. The delivery slip is pulled from the blue color coded box. If there is no existing slip, a new one is started. The school name is always recorded in black. The date and amount of boxes are recorded along with the clerk's initials. For private schools, the address is written on the back of the slip (for the driver's convenience - the list of addresses is on the packing table). The delivery slip is refiled in the proper box.

f. The school name is placed on the processing record pad along with the amount of boxes and the total amount of items. The instruction card is completed indicating the total amount of boxes. The card is then filed in the back of the proper file box.

g. The boxes are placed on the shipping dock underneath the appropriate area painted on the east wall of the warehouse. If the boxes are too heavy, the Section head is contacted.

CATALOGING PROCESSING PROCEDURES FOR AUDIO VISUAL MATERIALS REQUIRING FULL PROCESSING

The procedures for cataloging and processing of audiovisual materials are similar in almost all respects to those governing the cataloging and processing of print materials. In that regard, the full reproduction of these procedures here would consume a considerable amount of space and represent a large amount of redundant data. For that reason, the reader is asked to assume that the procedures are the same except for the differences that are noted below.

1. The procedures for processing federally funded A/V materials for schools is as follows:

a. An accession book is maintained. Each year, a block of numbers is assigned to A/V materials (always 001 through 999).

b. Boxes are opened, multicopy order slips are removed (white, yellow, blue).

c. The purchase order number is written on the white slip.

d. The clerk looks for catalog cards enclosed that were sent from the publisher. If found, the procedure can continue. If not, the BiblioFile system or master file is searched, or original card production takes place and cards are created as for books.

e. Once the cards are created, the set is kept with the A/V material, and the entry is made into the accession book as follows: (1) The date is typed on left margin for all entries that will be completed; (2) The appropriate sequential accession numbers are assigned; (3) The name of the material is listed; (4) The contents of the material is listed; (5) The purchase order number is recorded; (6) The publisher is recorded; (7) The price is recorded; (8) The name of the school is recorded. The above is done for every piece of federally funded A/V material so that a record is always available for auditing purposes. These records are kept for five years.

f. The federal accession number assigned is placed on each item either by label or permanent marker.

g. The catalog cards and a card and pocket are typed or printed as they are for books (call number, headings, etc.).

h. The card and pocket are typed or printed as follows: (1) On pocket - call number, title of material, federal number on right hand corner, contents on bottom half. (2) On card - call number, title of material, federal number on right hand corner.

i. The completed catalog cards and the yellow slip that verifies what was ordered is inserted in the pocket over the book cards. These are then placed in the box of audiovisual items.

j. The box of materials is placed in the original shipping box. The clerk double checks to make sure that the purchase order number is the same. The school name, date of completion, and initials of the processor are recorded on the box. (This is helpful when locating the materials in the accession book should any problems arise.) The shipping box is then retaped and the school name is printed in clear large letters. The date and processor's initials are also written on the top of the box.

k. The shipping box is then put on the shipping dock according to area. An A/V delivery slip is completed and filed in its appropriate area. When the boxes are picked up, the card is taken by the delivery men and then returned with the signature of the media specialist.

2. The A/V delivery slip is completed as follows:

a. The school name is placed on the card with the school number.

b. The purchase order number is recorded, along with the number of boxes and the initials of the processor.

c. As with books, the box is placed on the shipping dock in the correct area, referenced by the locations of schools that is kept by the stamping table.

3. Typing an in-house master card for AV is the same as for books. The only difference is that an ISBD general medium and specific medium designator are used to define more accurately the type of material being cataloged. The general medium designator is used in the body of the entry. The specific medium designator is used in the collation. Often, a title entry ("hanging indention") is used. Full information and sample materials are available on request.

APPENDIX C -- FINAL SYSTEM CONFIGURATION

The BiblioFile configuration program allows users to custom design system output by manipulating variable parameters. The final configuration represented below is the result of many changes, effected over an extended period, until desired system output was achieved. It is presented below to give the reader a better understanding of the BiblioFile system and its capabilities. Additionally, when the final configuration is reviewed in concert with Appendix B -- Revised Procedures, the reader should have a much more in-depth understanding of the operational characteristics of the system as implemented in the researcher's institutional setting.

BiblioFile system configuration is effected by navigating through a series of menus and sub-menus and changing default values to achieve desired output results. Once the changes have been made, the operator returns to the main menu and may either restore the original configuration or update the configuration based on inputed data. There are five major configuration areas:

I. System Setup
II. Printer Setup
III. Editor Setup
IV. Communication Setup
V. CD-ROM Configuration

Under each of the above configuration areas, all available options will be listed whenever possible. Selected options for the researcher's institution are highlighted with an asterisk. Additionally, as much narrative information as is possible to clarify each option is provided to assist the reader in understanding the range of options available.

I. SYSTEM SETUP:

1. SELECTED PRINTER:

*1. IBM or Compatible.
 2. Dot Matrix Printers.
 3. Impact Printers.
 4. Laser Printers.
 5. User Defined.

(Selections 2, 3, & 4 bring up a sub-menu of possible printers to select from).

(Selection 5 allows the user to enter printer control codes for printers not noted in items 1-4).

6. Change Printer Mode:
   *a. PRINT (Printer operates in normally).
    b. NOPRINT (There is no printer attached).
    c. WAIT (Printer pauses for print error).
    d. FILE (Print data to specified file in #7).

7. **Printer File Name:**
    - *a. NONE (Option not used).

2. **DEFAULT DISPLAY: (After a search is entered, display):**
    - *F3 MARC Record.
    - F4 Catalog card image.

3. **OUTPUT PATH PARAMETERS:**

    1. **Specify output path:**
        - *A: (Drive A).

    2. **Specify Maximum Records per disk:**
        - *500.

    3. **Allow duplicate control numbers:**
        - TRUE.
        - *FALSE.

    4. **Use Multiple output files:**
        - TRUE.
        - *FALSE.

II. PRINTER SETUP:

1. CLASSIFICATION OPTIONS:

    1. Classification Format:
        - a. LC FMT (Library of Congress).

b. LL FMT (Local Formatting Conventions).

*c. DD FMT (Dewey Decimal).

2. Classification Tag:

*082 (Dewey Decimal Tag).

3. Local Classification Options:

*DEFAULT (Option not used).

4. Library of Congress Classification Options:

*DEFAULT (Option not used).

5. Dewey Decimal Classification Options:

a. Where to Break (Go to next line on):

1. Period:

*BREAK.

CONT(inue).

2. 1st Break:

*CONT.

3. 2nd Break:

*BREAK.

CONT.

4. 3rd Break:

*BREAK.

CONT.

5. Maximum Characters:

*9.

b. Where to Quit:

1. Period:

   *CONT.

   QUIT.

2. 1st Break:

   CONT.

   *QUIT.

3. 2nd Break:

   CONT.

   *QUIT.

4. 3rd Break:

   CONT.

   *QUIT.

5. Maximum Characters:

   *18.

c. Fiction Indicator:

*1. FMTA - Print as entered.

2. FMTB - Print as "F".

3. FMTC - Print as "FIC".

4. FMTD - Print as "Fic".

5. FMTE - Print as "FICTION".

d. When to add cutter:

*NONE (Option not used).

e. Author Characters:

*0 (Option not used).

2. CARD PROFILE OPTIONS:

1. Blank Lines above the Form:
   *0.
2. Blank Characters Left of the Form:
   *0.
3. Alignment Characters:
   PRINT.
   *NOPRINT.
4. Cards per Page (for sheet fed forms):
   *0 (Option not used).
5. Blank Lines on Top of Page (for sheet fed forms):
   *0 (Option not used).
6. Card Setup Configuration:
   a. Screen Setup:
      *ELITE (12 Characters per inch).
   b. Printer Setup:
      *ELITE (12 Characters per inch).
   c. Screen Setup Type:
      *DEFAULT.
   d. Pica Setup Type:
      *DEFAULT.
   e. Elite Setup Type:
      1. Card Lines:
         *24.

        2. Card Line Characters:

            *45.

        3. Indent Characters:

            *4.

        4. Left Margin Characters:

            *6.

        5. Right Margin Characters:

            *1.

        6. Lines above the Main Entry:

            *2.

        7. Classification Number:

            *PRINT.

            NOPRINT.

        8. Classification Number Line:

            *3.

        9. Classification Character Position:

            *1.

    f. Hiden Setup Type:

        *DEFAULT.

    g. Laser Setup Type:

        *DEFAULT.

7. Small Print Configuration:

    *DEFAULT (only 12 characters per inch is used).

3. CARD SET PROFILE OPTIONS:

   1. Main Entries per Set:

      *2.

   2. Number of Sets:

      *FIXED.

      VARIABLE.

   3. Fixed Number of Sets:

      *1.

   4. Variable Tag Number:

      *0 (Fixed option selected).

   5. Variable Information Field:

      *DEFAULT (Fixed option selected).

4. CARD HEADING OPTIONS:

   1. Capitalize Headings:

      FMTA -- No Capitalization.

      *FMTB -- Subject Headings only.

      FMTC -- All Headings.

   2. Fixed Headings:

      *OPT1 -- Headings truncated after two lines.

      OPT2 -- No Truncation.

   3. Subject Headings:

      *PRINT.

   4. Author Added Entries:

      *NOPRINT.

5 Title Added Entries:

*PRINT.

6. Series Added Entries:

*NOPRINT.

7. Title Sub-Fields:

*DEFAULT (Sub-fields a, b, & h).

5. CONTENTS OF CARD OPTIONS:

1. Added Entry Tracings:

*PRINT.

2. AACR2 Number:

*NOPRINT.

3. Print MARC on Bottom:

*NOPRINT.

4. Print LC or Dewey on Bottom:

*NOPRINT.

5. ISBN:

*PRINT.

6. ISBN Location:

*OPT1 -- After Notes.

OPT2 -- Bottom of Card.

7. Note Printing Options:

a. When to Print Notes:

*1. OPT1 -- On all Cards.

2. OPT2 -- On Main Entry Cards Only.

b. Default Notes:

*NOPRINT.

c. General Notes:

*PRINT.

d. Bibliographic Notes:

*NOPRINT.

e. Content Notes:

*PRINT.

f. Annotation or Abstract Notes:

*NOPRINT.

g. Bound With Notes:

*NOPRINT.

h. Dissertation Notes:

*NOPRINT.

8. Special Card Print Options:

a. *DEFAULT.

6. LABEL PRINTING OPTIONS:

1. Standard Label Setups:

*DEFAULT (Standard labels not used).

2. Custom Label Form Parameters:

a. Characters per Inch:

*12.

b. Lines Per Inch:

*6.

c. Total Form Length:

*15.

d. Total Form Width:

*36.

e. Alignment Characters:

*NOPRINT.

f. Blank Lines at Top:

*1.

g. Blank Lines at Bottom:

*0.

3. Custom Spine Label Parameters:

a. Print Spine Label:

*NOPRINT (Rest of this section is default).

4. Custom Pocket Label Parameters:

a. Print Pocket Label:

*PRINT.

b. Pocket Label Length:

*7.

c. Pocket Label Width:

*36.

d. Left Margin Characters:

*0.

e. Print Class Number:

*OPT1 -- In Spine Label Format.

OPT2 -- Do Not Print Class.

f. Print Second Label Down:

*PRINT.

- g. Number of Labels Across:
  - *1.
- h. Spaces Between Labels:
  - *2.

5. Number of Copy Options:
   - a. Number of Sets:
     - *FIXED.
     - VARIABLE.
   - b. Fixed Quantity:
     - *1.
   - c. Variable Information:
     - *DEFAULT (Fixed option selected).
6. Special Print Options:
   - *DEFAULT.
7. Display Label Format (on Screen - hit any key to continue).

7. SORTED CARD SET OPTIONS:

1. Grouping and Sorting:
   - a. Grouping:
     - *OPT1 -- Regular Grouping (Main Entry, Author/Title and Subject, etc.).
     - OPT2 -- Dictionary Grouping (Main Entry and others in dictionary order).
     - OPT3 -- Divided Grouping -- (All cards segregated by author/title).

b. Sorting:

*OPT1 -- Ascending Order (A-Z).

OPT2 -- Backwards (Z-A).

8. Edit Sheet Printing Options:

1. Single or Double Space:

   *DOUBLE.

2. Sub-Field Marker (@ or $):

   *@.

3. Characters per Inch:

   *12.

4. Lines per Inch:

   *6.

5. Total Form Length:

   *55.

III. EDITOR SETUP:

1. Set Cursor to Start in Field (Tag):

   *82.

2. Set Position of Cursor in Selected Field:

T -- Tag.

I -- Indicator.

S -- Sub-Field Marker.

*D -- Data.

E -- End.

3. Add 010 Field for LC Number:

TRUE.

*FALSE.

4. *Setup Tag Names and Automatic Data:

The above option allows the operator to scroll through all 886 MARC tags and delete specifically unwanted MARC tags, fields or sub-fields. The operator may also change the name of existing tags, fields or sub-fields or add additional fields and names. Data entered under this option is automatic and determines what data will, or will not be, displayed each time a record is retrieved. The options available are too extensive to present here since a single tag may encompass several fields and sub-fields. A short example, however, is provided below.

TAG #020 INTERNATIONAL STANDARD BOOK NUMBER (ISBN)

Sub-field A: ISBN.

Sub-field B: Binding Information.

Sub-field C: Terms of Availability.

Sub-field Z: Canceled/Invalid ISBN.

Automatic Data Options:

Ins	Insert New Tag.
Del	Delete Tag.
+	Change/Modify Tag.
0	Quit and Update.
Esc	Abort and Restore Original Tag List.

IV. COMMUNICATION SETUP:

1. Communication Format:
   - *a. NORMAL -- No Communications.
   - b. CLSI Communication Protocol.
   - c. MARC Communication Format.
   - d. X-OFF Communication protocol.
   - e. ALIS Communication Protocol.

2. Communication Port:

   *0.

3. Baud Rate:

   *1200.

4. Word Length:

   *8.

5. Stop Bits:

   *1.

6. Parity:

   *0.

7. Path to Communication Output File:

   *NUL (Default).

8. Overlay Code:

   *BI (Default).

V. CD-ROM CONFIGURATION:

1. I/O Port Address for Connected CD-ROM Reader(s):

   a. Drive 1:
   b. Drive 2:
   c. Drive 3:
   d. Drive 4:

* I/O port addresses are assigned by the Library Corporation at the time each CD-ROM device connected to the system.

APPENDIX D -- SURVEY INSTRUMENT

Below follows the cover letter and survey instrument used to evaluate the perceived effectiveness of the BiblioFile system by school based media personnel.

MEMORANDUM

To: All Media Specialists

From: Jim Buchholz, Media Specialist for Processing
Department of Instructional Support Services

Subject: Evaluation of the BiblioFile System

Date: June 9, 1987

The addition of the BiblioFile Catalog Production System has allowed Processing to locally obtain and print catalog card sets and check out cards and pockets for books instead of purchasing them by mail from the Library of Congress or duplicating cards from the master file. In the area of AV materials, BiblioFile has allowed Processing to produce cataloging materials faster and this has made possible the reinstatement of full processing of all AV materials, regardless of school center media staffing.

It is time to evaluate the effectiveness of the system. In that regard, a time-cost study will be conducted this summer to evaluate the system from an administrative point of view. Your help is needed in evaluating the system from your point of view. I realize that it is late in the year to make such a request, but your input is vital. Completion of the attached survey will only take a couple of minutes and it is requested that you place it in the pony before you leave for the summer. This will give us at ISS the summer months to implement your suggestions so that identified changes will be in place when you return in the fall.

Please be honest. I will look forward to your comments. Please use the enclosed envelope to return your survey. Thank you in advance for your help.

BIBLIOFILE EVALUATION SURVEY

RATING SCALE: 5=Excellent; 4=Good; 3=Average; 2=Below Average; 1=Poor.

---- 1. Overall, how would you rate the physical quality and contents of catalog card sets and check out cards and pockets for library books?

---- 2. Overall, How would you rate the physical quality and contents of catalog card sets and check out cards and pockets for AV materials?

---- 3. How would you rate the format of cataloged and processed print and non-print materials in terms of reflecting approved standards (Library of Congress, AACR II and the ISBD format)?

---- 4. In terms of being able to locate the material, how would you rate the completeness of information that is provided on the catalog cards for books?

---- 5. In terms of being able to locate the material, how would you rate the completeness of information that is provided on the catalog cards for AV?

---- 6. How do you rate the Dewey Decimal classifications and designations for fiction, biography, etc. used on book and AV catalog cards, in terms of conforming to your media center's processing specifications?

---- 7. How would you rate catalog cards received in terms of having enough tracings (subject headings)?

---- 8. How would you rate the information printed on the check out cards and pockets?

Please return this survey via pony by the end of the day on Friday, June 12th to Jim Buchholz, Building 508.

BIOGRAPHICAL SKETCH OF RESEARCHER

The researcher is James L. Buchholz, Media Specialist for Processing with the Department of Instructional Support Services of the Palm Beach County Schools. The researcher's work related duties include the supervision of 17 employees and responsibility for the functions of the Acquisitions, Processing, and Film Library sections of his department. The researcher had 15 years of school based experience before joining the department in September of 1985.